JANUARY, 1960

TRAFFIC ENGINEERING

"Clear" Crossings in Miami

The Use of Travel Time as a Factor in Rating Urban Streets

San Francisco Bay Area Transportation—1960

Changing Patterns in Grand Rapids

Possible Traffic Help for Small Towns

INSTITUTE OF TRAFFIC ENGINEERS
ITE
FOUNDED 1930

SIGN-MAKING IS EASY WITH STIMSONITE® LETTERS

You can lay out signs on the spot with Stimsonite letters—you don't need costly production equipment or special fasteners.

The unequalled readability of Stimsonite cutout letters, day or night, in all kinds of weather, has been proved by years of service. The wide range of alphabets offered by Stimsonite is unequalled, too. For your signing needs, you can choose from over 1000 different letters and accessories—ranging from 4 inches to 30 inches in height—capitals or upper and lower case.

Get the whole story. Write today for Bulletin S-4C on spacing rules and letter dimensions.

STIMSONITE® for *Seeability* *Readability* *Durability*

AGA DIVISION

ELASTIC STOP NUT CORPORATION OF AMERICA
1027 NEWARK AVENUE, ELIZABETH 3, NEW JERSEY

3¾% interest

on New U.S. Savings Bonds

now in effect

and the Bonds you already own are better than ever, too!

Now U.S. Savings Bonds are a better buy than ever in three important ways:

- ***All Series E and H Bonds bought since June 1, 1959, now earn 3¾% interest when held to maturity.***
- ***Older Bonds will also pay more—an extra ½%, from June 1 on, if you hold them to maturity.***
- ***All Series E Bonds, old or new, now carry an automatic extension privilege; they'll keep paying liberal interest for 10 years beyond maturity.***

Three big new *dollar* benefits that make it smart to buy new Bonds—and hang on to the ones you have!

40 million Americans now own Bonds

But a good return isn't the only reason so many people buy Bonds. They've discovered that there's no easier, safer, more *American* way to save.

You can buy Bonds automatically, through the Payroll Savings Plan where you work; you can buy them at your bank; your youngsters can even buy them at school, through the School Savings Plan for U.S. Savings Stamps.

The U.S. Government guarantees that the cash value of your Bonds cannot drop; it can only grow. And if your Bonds should be lost, stolen, or destroyed, the Treasury will replace them free.

Finally, every Bond you buy does a big job for America. Because today peace costs money—money for military strength and for science; and money saved by individuals to keep our economy sound.

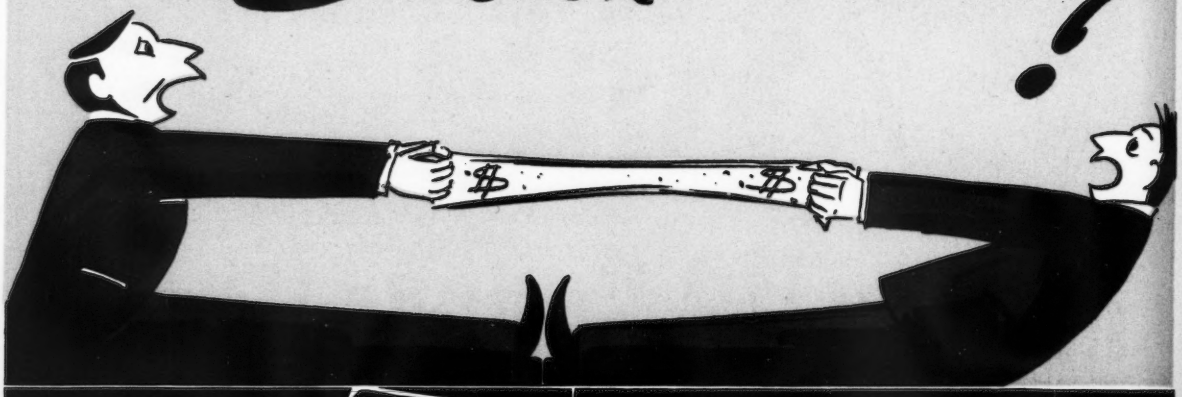
Your Bonds help provide this money—help America keep the peace. So, to build a brighter future for yourself and your family—and to *protect* it—save with U.S. Savings Bonds. They're better than ever.

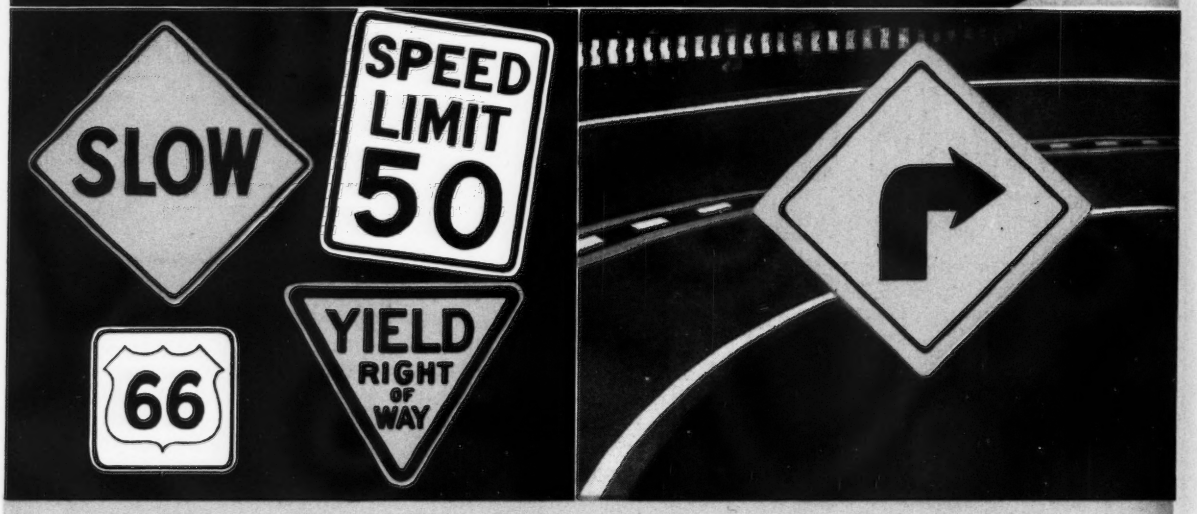
HELP STRENGTHEN AMERICA'S PEACE POWER

SAVE WITH U.S. SAVINGS BONDS

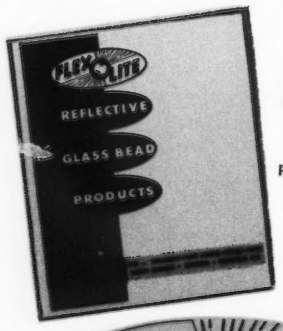
The U.S. Government does not pay for this advertising. The Treasury Department thanks The Advertising Council and this magazine for their patriotic donation.

TRYING TO *Stretch* YOUR SIGN BUDGET?





Reflectorize with *Lead-Free* No. 831 (High Index) and UB 68 (Medium Index) Sign Kits



Write today for free booklet. Contains test and specification data, application procedures, and other helpful information.

If you're in a sign budget dilemma, you'll solve your problem more readily with optical quality No. 831 and UB 68 Reflective Glass Beads. No. 831, best for white and yellow signs, and UB 68, for application in the darker pigmented colors, are *lead-free* . . . won't turn dark, provide extra reflectivity throughout a longer life for greater safety and economy.

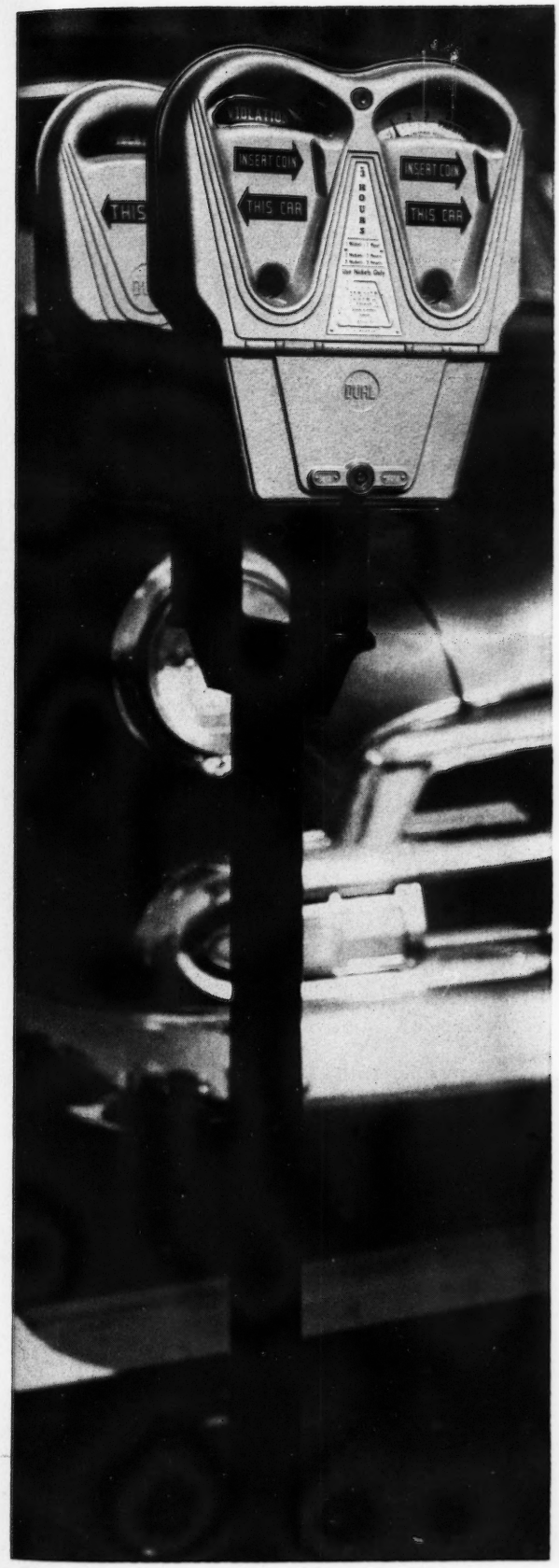
Bead budgets go farther . . . the result of better research and engineering and advanced methods of manufacture. And with today's overall improvements in quality, gradation, and application techniques, you have the combination that spells better reflectorized signs for less—with *whitest white, lead-free, optical quality* glass beads by Flex-O-Lite. Write for details.

FLEX-O-LITE

FLEX-O-LITE MFG. CORPORATION

8301 FLEX-O-LITE DRIVE • P. O. BOX 3066 (AFFTON BRANCH)

ST. LOUIS 23, MISSOURI



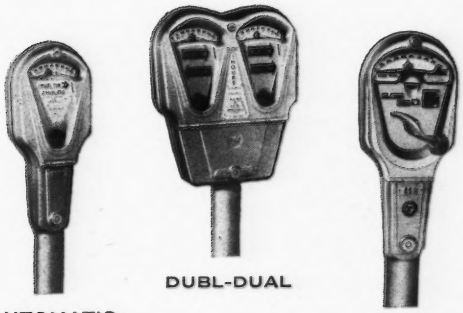
SLASH INSTALLATION COSTS UP TO

50%

WITH DUBL-DUALS

You save up to one-half on installation costs when you buy Rockwell Dubl-Dual parking meters, because two mechanisms are built into *one* case. Besides saving 23% on the initial cost, only half as many meter stands are required . . . on off-street lots you can put four meters on a single stand (see photo at left). This also cuts collection and maintenance time greatly and frees personnel for other revenue-producing jobs.

Dual, with 25 years of know-how, can also give you expert advice and assistance on street-marking, to accommodate more cars . . . on-street or off-street. For information on Rockwell's complete line of automatic and manual parking meters, write: Dual Parking Meter Company, Subsidiary of Rockwell Manufacturing Company, Pittsburgh 8, Pa.



AUTOMATIC

DUBL-DUAL

MANUAL

The only complete line
of automatic and manual parking meters

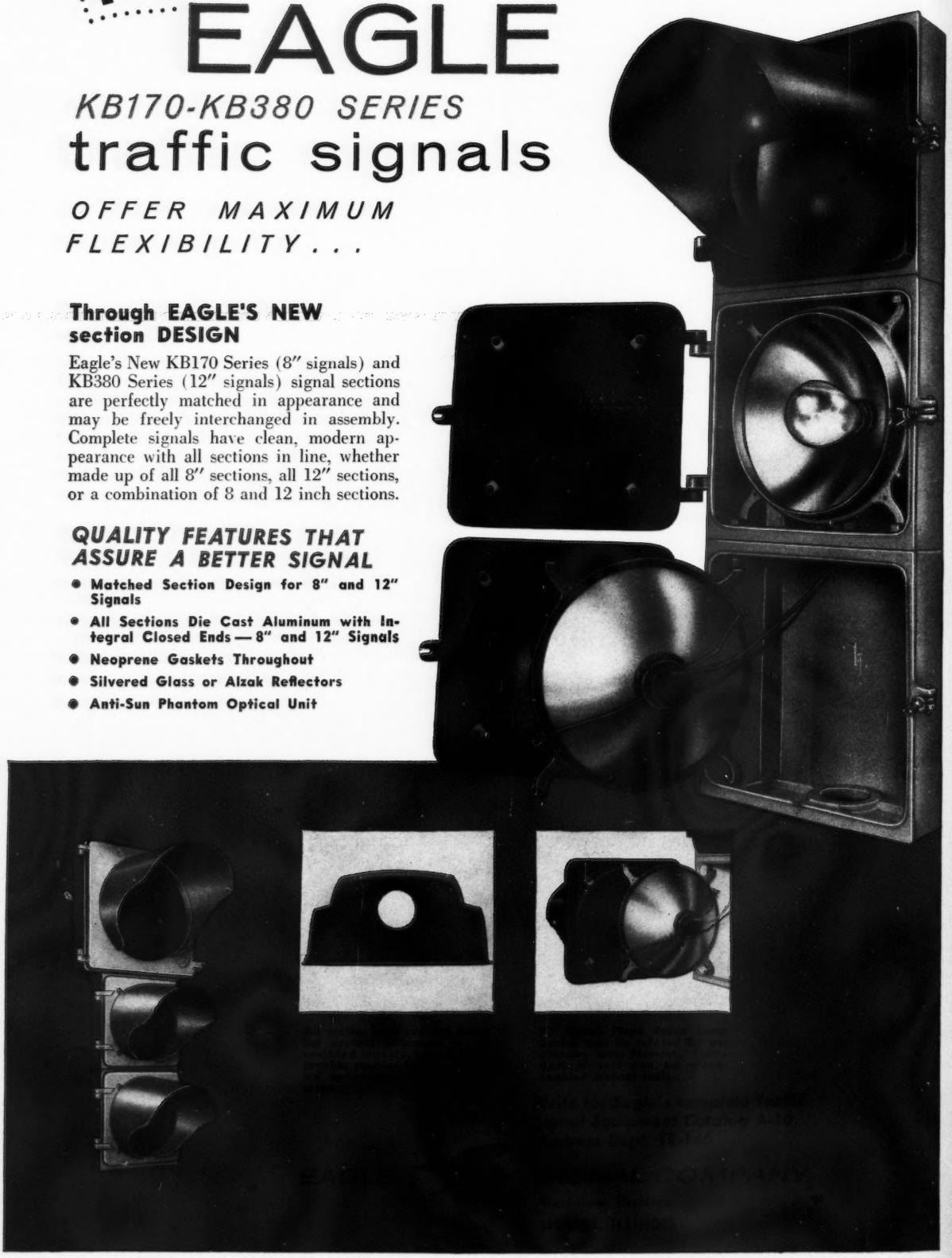
DUAL PARKING METERS
another fine product by
ROCKWELL

NEW

EAGLE

KB170-KB380 SERIES
traffic signals

OFFER MAXIMUM FLEXIBILITY . . .



Through EAGLE'S NEW section DESIGN

Eagle's New KB170 Series (8″ signals) and KB380 Series (12″ signals) signal sections are perfectly matched in appearance and may be freely interchanged in assembly. Complete signals have clean, modern appearance with all sections in line, whether made up of all 8″ sections, all 12″ sections, or a combination of 8 and 12 inch sections.

QUALITY FEATURES THAT ASSURE A BETTER SIGNAL

- **Matched Section Design for 8″ and 12″ Signals**
- **All Sections Die Cast Aluminum with Integral Closed Ends — 8″ and 12″ Signals**
- **Neoprene Gaskets Throughout**
- **Silvered Glass or Alzak Reflectors**
- **Anti-Sun Phantom Optical Unit**

TRAFFIC ENGINEERING

OFFICIAL PUBLICATION OF THE INSTITUTE OF TRAFFIC ENGINEERS

Vol. 30 JANUARY, 1960 No. 4

INSTITUTE OFFICERS

EDWARD G. WETZEL
President

A. F. MALO
Vice-President

GORDON K. GRAVELLE
Vice-President

ROBERT A. BURCH
Secretary-Treasurer

DIRECTORS

EUGENE A. BARTON
District Number 3

M. V. GREER
District Number 5

J. AL HEAD
District Number 6

FRED W. HURD
District Number 1

O. K. NORMANN
District Number 2

EVAN E. OLMSTEAD
District Number 4

MATTHEW C. SIELSKI
Immediate Past President

PUBLICATION STAFF

DAVID M. BALDWIN
Editor

REBEKAH FRIEBELY
Managing Editor

G. A. BACCHUS
J. W. CHAMBLISS
C. C. CLARK
WM. E. CORGILL
R. E. DUNN
M. J. HUBER
E. A. MUELLER
C. C. ROBINSON
S. T. SIEGEL
BURT WHEDON
Associate Editors

CONTENTS

FEATURES

"Dear" Crossings in Miami 11
Vincent E. Grimm, Jr.

The Use of Travel Time as a Factor in Rating Urban Streets 13
Thomas B. Deen

San Francisco Bay Area Transportation—1960 19
M. H. West

Changing Patterns in Grand Rapids 21
C. L. Simmons

Possible Traffic Help for Small Towns 23
Sidney E. Doyle

NEWS

Coming Events 20
Traffic News 25
New Appointments 28
New Publications 29
Strictly Business 38

TECHNICAL NOTES

British Practice Regarding Membership in Engineering Societies .. 43
Design and Color of Pavement Markings 44
Speed Checks 46

INSTITUTE AFFAIRS

Committee Appointments 48
Membership Applications 48
Section News 50
Yearbook Changes 56

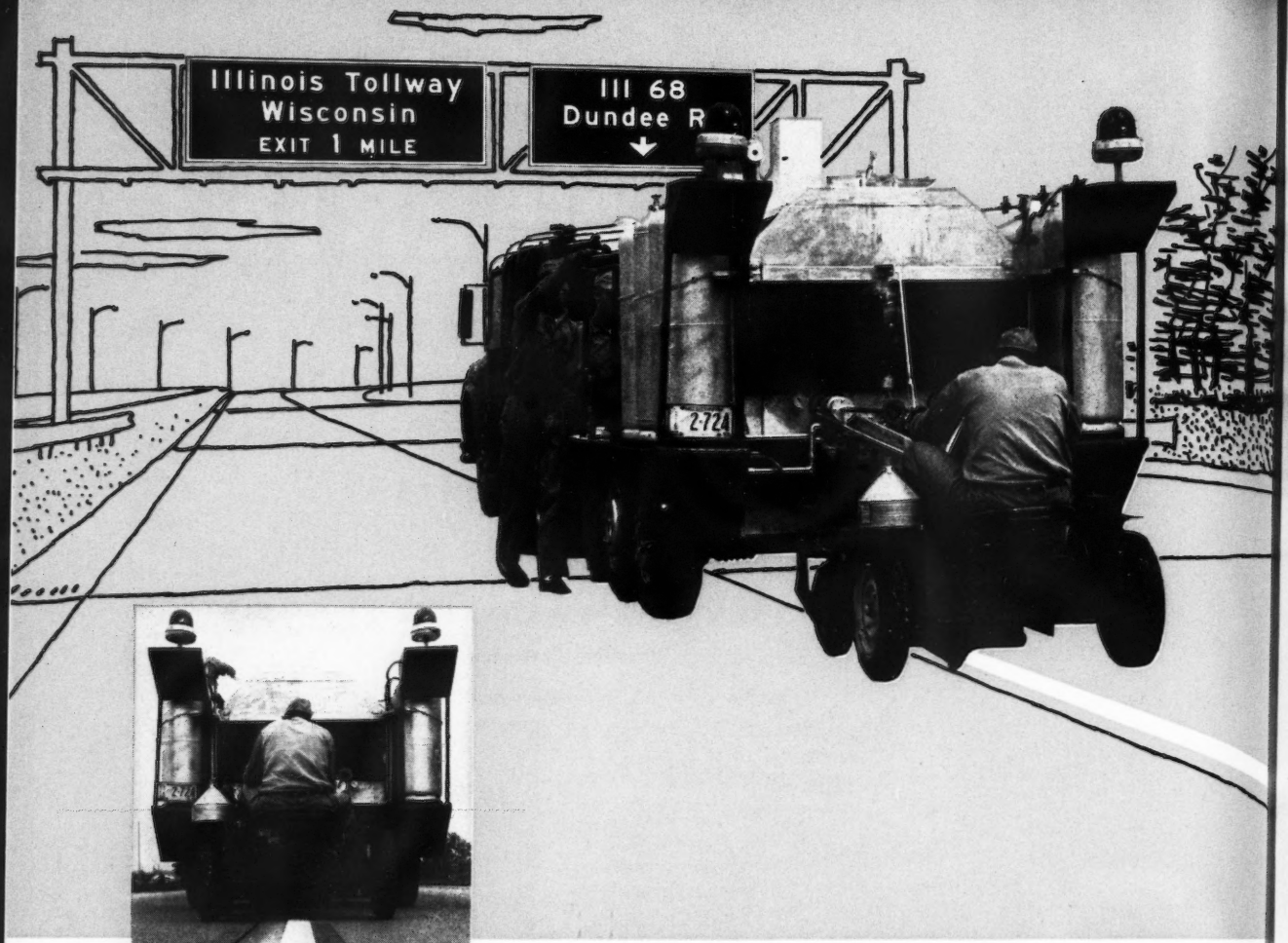
MISCELLANEOUS

Positions Available 58
Letter to the Editor 58
Professional Service Directory ..... 62 & 63
Index to Advertisers 62

COVER: The new Detroit Civic Center. The John C. Lodge Expressway enters from the left. Note the steelwork for a spiral parking ramp leading from the expressway to the roof parking area. —Photo from Michigan State Highway Department

TRAFFIC ENGINEERING is published monthly by the Institute of Traffic Engineers. Editorial offices are at 2029 K Street NW, Washington 6, D.C. Advertising plates should be sent to Interstate Printing Corp., 400 Watchung Avenue, Plainfield, N. J. Advertising representatives: New York—Seymour A. Robbins & Associates, 489 Fifth Avenue, N. Y. 17. Chicago—Scott Kingwill & Associates, 35 E. Wacker Drive, Chicago 1. Los Angeles—Jess M. Laughlin Co., 3142 Wilshire Blvd., Los Angeles 5. Entered as second-class matter November 7, 1941, at the Post Office at Plainfield, New Jersey, under Act of March 3, 1879. ¶Single copies 50 cents, subscription price $4.50 per year in the United States and Canada; $5.75 per year to foreign countries.

The Institute is not responsible for any statements made or opinions expressed in its publications. Publication of advertising does not constitute Institute approval or endorsement of the products or services advertised. Permission to reprint contents with customary credit line is given unless otherwise stated. The Institute seal, pictured at the upper left on this page, is a Registered Trade Mark of the Institute of Traffic Engineers.



Cataphote crew lays long-lasting Catatherm on Eden's Expressway—Chicago.

Cleanly extruded Catatherm hits and bonds to pavement at approximately 400° F. Stripe is traffic-ready 3 to 6 minutes later.

Catatherm Reflective Thermoplastic Striping goes down easy . . . stays down longer

This is Eden's Expressway on Chicago's North Side . . . one of the world's busiest thoroughfares. Pavement markings of ordinary traffic paint have little chance of survival here.

To solve the problem of "short life" markings, the Illinois State Highway Department turned to Catatherm . . . Cataphote's reflective thermoplastic striping material. Composed of specially formulated thermoplastic resins, pigment and over 40% reflective traffic beads, Catatherm is hot extruded directly and securely onto any pavement . . . is available in white and yellow. Cataphote waterproof drop-on traffic beads, applied simultaneously with the extruding operation, provide immediate all-weather reflectance . . . add longer life to the stripe.

Catatherm can mean a brighter safety picture for *you* in the actual striping operation. Striping equipment at work creates a traffic hazard . . . the possibility of accident is always present. Drastically reduce restriping and this danger is virtually eliminated. You can do this with Catatherm . . . it outlasts good quality paint stripes from 9 to 26 times . . . saves plenty of maintenance dollars, too.

Pace setters in traffic control have recognized the advantages of Catatherm. Now, they "STRIPE IT . . . AND FORGET IT." Like to be a leader, too? Let us tell you more about Catatherm. Write for Catalog C-160.

CATAPHOTE CORPORATION

TOLEDO 10, OHIO / JACKSON, MISSISSIPPI

MANUFACTURERS OF REFLECTIVE TRAFFIC PRODUCTS

Frankly Speaking . . .

THE TREND toward urban living in this nation has introduced complex problems in the transportation of people and goods in cities and through metropolitan regions. Now, nearly two-thirds of our population reside in urban areas.

Traffic engineers, transportation engineers, highway engineers, planners, economists and a host of other specialists are vitally and actively concerned with various phases of these problems. The solutions to these problems can be achieved only through teamwork, close cooperation and the combined efforts of private organizations, city and local governments in the urban areas, with the state and Federal governments as well.

All types of transportation are necessary to meet the needs of a modern metropolitan community. All means available, when warranted, must be utilized — private and public, rubber-tired and rail, transit and railway — if economic and safe transportation of goods and persons is to be accomplished. Each is necessary in its own field, where it can perform the greatest service.

The recommended "Transportation Plan" of the National Capital Region, for example, proposes coordinated transportation facilities to serve that metropolitan region. Chicago's Congress Expressway, a combined highway and rapid transit facility is an example of the results of close cooperation between City, County, State, Federal and transit officials to achieve the most transportation facility for the least cost. Other expressways in the Chicago area will contain both mass transit and highway facilities within the same right-of-way.

If our urban areas are to maintain their economic health and if we are to realize the greatest return from our transportation investment, it is essential that all forms of metropolitan transportation be placed and utilized in their proper perspective, each to the other, so that transportation facilities conforming to the highest and best objectives of community development are provided.

EVAN E. OLMSTEAD
Director, District 4
Institute of Traffic Engineers

from coast to coast

PR

system of traffic signal control

TRAFFIC ACTUATED ®

AUTOMATIC SIGNAL DIVISION

"Dear" Crossings in Miami

By Vincent E. Grimm, Jr.
Traffic Engineer
Miami, Florida

TRAFFIC ENGINEERS everywhere are constantly striving to achieve a safer means for school children to cross busy city streets without unduly limiting the movement of vehicular traffic. The City of Miami has progressed a long way in solving this problem—through mechanization and color. We have replaced school crossing guards (and 15 M.P.H. School Zones) with pedestrian actuated signals. We have treated our crossings with special signs and color. We have coined these special installations as "DEAR CROSSINGS." We have provided a safer means to direct the movements of large groups of children to and from school. We have eliminated traffic leap-frog through school zones. We have afforded a substantial economic saving to the taxpayer. This program has been well received by officials and public alike. We are working toward this type of crossing being used as a standard elementary and junior high school crossing throughout Dade County. We feel that this program is playing an important part in helping our children to become better adults.

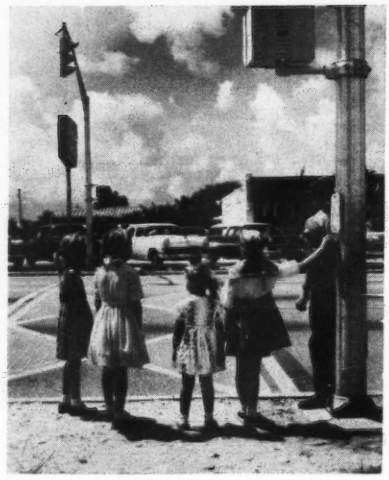
Prior to the 1958-59 school year, Miami used school zones (15 M.P.H. speed limits and school guards) to move 43,000 children across its streets. In the summer of 1958 we installed 70 pedestrian actuated signals. These 70 installations replaced an equal number of school guards for the coming school year.

To initiate a program of this nature was not an easy chore. Parent-Teacher Associations, Principals and Civic groups were not easily sold that an automatic signal device could compete with a human being. The most important selling point was that our signal provided continual protection, not protection three hours a day only on school days.

Our first installations were made mid-block to eliminate the problem of conflicting movements. A typical installation consisted of a two way, three section lamp with a 12″ red lens. On each side of the crosswalk facing pedestrians, "Walk" and "Don't Walk" lights were placed. Push buttons activate the signal and are located at a proper height for elementary grade children. The crosswalk was striped in yellow traffic paint. Two hundred feet in each direction from the crosswalk, a diamond shaped sign with the message "School Pedestrian Signal Ahead" was installed. The pedestrian signal was synchronized with a traffic signal light; so that progression was maintained.

Our first year with mechanical school crossings was a success. The prior year with school guards we had 28 accidents in crossings supervised by school guards. In our first year with the mechanical crossings we had no accidents. This one fact has been our greatest reward.

In spite of this success, we did not feel that we could rest on our laurels. We were very well convinced that the children would accept and use an automatic school crossing, but we wanted something more — something which would call immediate attention to the motorist that school children were using certain designated locations to cross arterial streets. We felt that the most protection was necessary for our elementary and junior high school students. For this level we developed a highly distinctive type of installation. These installations we call "DEAR CROSSINGS" and differentiate the "DEAR CROSSING" from the regular mid-block crossing or other pedestrian crossing by using a special sign and a special color. The color we have adopt-



ed is an industrial fluorescent red-orange. This very vivid color appears to glow in direct sunlight and is clearly visible for 600 feet. This special sign has the word "DEAR CROSSING" and the picture of a little girl. All signal lamps, all signs, the "Walk" and "Don't Walk" signals and the cross walks are treated in this color.

We began school this fall without school guards. When school ended in June, Miami still had eighteen school guards. These guards served at some of Miami's heaviest traveled intersections.

Our experience enabled us to expand our mid-block program to the intersections. Each intersection which must handle children was studied for the best possible solution.

The direction children cross the intersection is designated by our special cross walks. The color treatment and the special signs are also present. All conflicts between motorist and pedestrian have been eliminated by restricting turning movements during the hours children are entering or leaving school. We are now watching closely for any problems we didn't anticipate.

In reviewing our first year's efforts one factor beyond our control became very evident. This factor was the established School districts. In several locations school districts overlapped arterial streets—in most cases by only one block.

In this area the Dade County Board of Public Instruction is a separate political subdivision. The head of the School Board and the board members are elected by public vote. School districts, which are established by the board, are based upon distance—keeping the maximum distance a child must walk fairly uniform for all schools.

In our effort to revise school districts we spent three months analysing attendance records, pupil residences, grade assignments, classroom capacities, and distances to and from school. The results of this study enabled us to approach the School Board with recommendations to revise certain school districts. Because of the requirements of the school board, complete revision will not be possible this year. Districts which overlap arterial streets have become optional areas. The parent of the child must now make the decision whether to send his child to a school which requires him to cross an arterial street, or to a school which may be a little farther, but which will not require the child to cross an arterial street. The active support our program has received to date makes us feel that most parents will exercise the greater safety option for their child.

The cost factor is always of interest. School guards in Miami were an annual budget item of over $125,000.00. The initial cost for a mid-block installation is about $950.00. Installations made on a divided street or highway call for use of two aluminum mast arms and increases the cost $500.00. Installation of similar equipment at an intersection costs about $675.00. These estimates do not include labor. Our yearly maintenance is estimated at $50.00, for each complete "DEAR CROSSING" installation. Although the savings in cost is a desirable feature, our primary concern is to provide the safest possible installations for our children to get to and from school.

We feel that any city can obtain equally satisfactory results by following a program similar to that undertaken in Miami. Municipal traffic officials and enforcement agencies, working in cooperation with local school boards, can accomplish a safe school crossing program and, at the same time, move traffic at a smoother and faster progression by:

1. Establishing a set of criteria to determine the need for automatic pedestrian actuated signals. In Miami we have developed the following basic criteria:

a. The signal replaces a school guard.
b. The volume of children at the crossing exceeds fifty.
c. The volume of traffic must exceed 250 vehicles per hour and leave no reasonable gap in the platoon of traffic. (This is not the same as our warrant for a signal at any intersection.)
d. It must be an arterial street the crossing of which requires supervision.
e. If possible, no other signal is within 1200 feet.
f. School principals must recommend the installation and take responsibility for supervision of the school patrol.

2. Using intersections, where absolutely necessary, and strictly controlling conflicts between pedestrian and vehicle.

3. Common sense readjustment of school districts so as to keep children away from arterial streets, wherever feasible.

4. Recognize that such programs must be reviewed constantly.

Uniformity of design, color and use must be rigidly imposed in order to achieve the desired results in the interest of our common goal—protection of child and clearing the streets for everyday traffic. We believe the success of the Miami operation is due to a large degree to the effectiveness and appeal of our colorful and uniform "DEAR CROSSINGS."

The Use of Travel Time as a Factor In Rating Urban Streets

By Thomas B. Deen
Coordinator, Nashville Metropolitan Area
Transportation Study

In order to properly program for street and highway improvements in an urban area, there is a real need for an objective method of evaluating urban streets according to the relative level of service they provide. This same problem has been faced and satisfactorily solved in rural areas by incorporating into rural sufficiency ratings a performance rating based usually on the volume capacity ratio. The problem is much more complex in urban areas, mainly because the capacity of a street varies greatly at different points on the street depending on cross-traffic, type of control, parking regulations, side friction, turning movements and other factors. Because of this, a number of different approaches have been made including "economic ratios," "quality of transmission," "instantaneous performance ratings" and travel time. Travel time seems to have much merit as a performance rating since improvement in overall travel speed is one of the main objectives of any transportation improvement. The advantage of the jet aircraft over the propeller aircraft, the advantage of the freeway over the farm-to-market road, the advantage of a new Buick over a Model-T, lies, in a large measure, in the reduced travel time afforded. Thus, it would seem that a simple measure of travel time on various street segments should provide the basic data required for a performance rating of those streets.

Nashville has just completed an extensive travel time study on its major streets as part of the Nashville Metropolitan Area Transportation Study. This study is being conducted in accordance with the recommendations of the National Committee on Urban Transportation as given in its guide

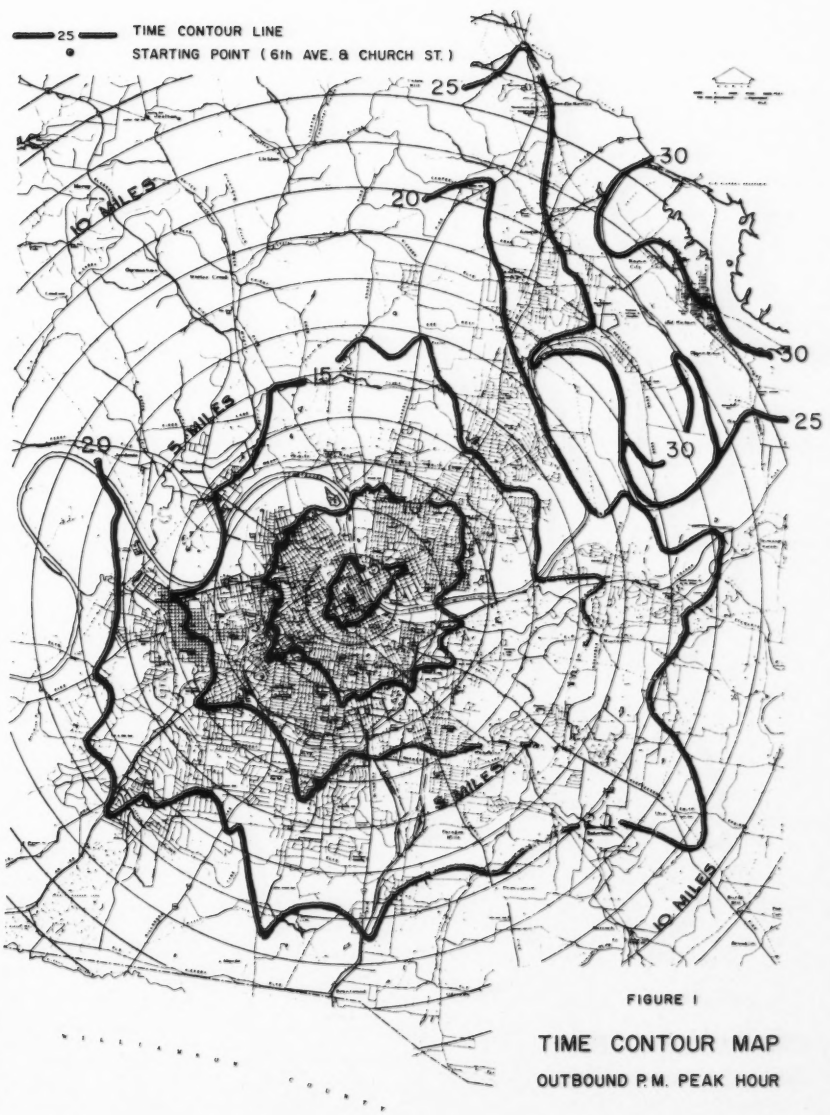


FIGURE 1

TIME CONTOUR MAP

OUTBOUND P.M. PEAK HOUR

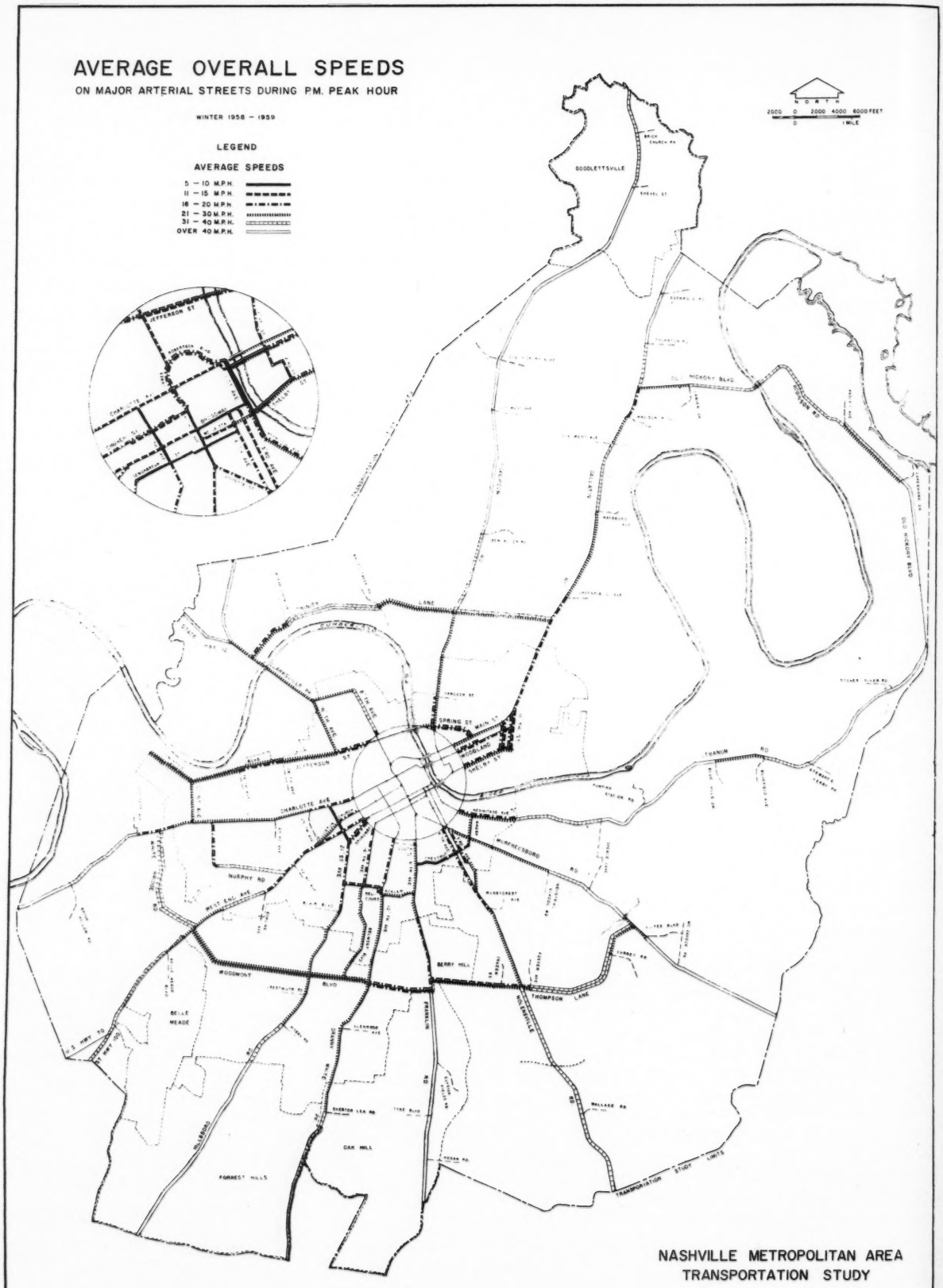

AVERAGE OVERALL SPEEDS
ON MAJOR ARTERIAL STREETS DURING P.M. PEAK HOUR
WINTER 1958 – 1959
LEGEND
AVERAGE SPEEDS
5 – 10 M.P.H.
11 – 15 M.P.H.
16 – 20 M.P.H.
21 – 30 M.P.H.
31 – 40 M.P.H.
OVER 40 M.P.H.
NORTH
2000 0 2000 4000 6000 FEET
1 MILE
GOODLETTSVILLE
OLD HICKORY BLVD
SPRING ST
CHARLOTTE AVE
MURPHY RD
WEST END AVE
WOODMONT BLVD
BELLE MEADE
BERRY HILL
THOMPSON LANE
FRANKLIN RD
GLENROSE AVE
OVERTON LEA RD
OAK HILL
FOREST HILLS
MURFREESBORO RD
WALLACE RD
TRANSPORTATION STUDY LIMITS
NASHVILLE METROPOLITAN AREA
TRANSPORTATION STUDY

Figure 2

"Better Transportation For Your City" and the numerous procedure manuals. The entire Transportation Study includes a comprehensive Origin-Destination Study, an extensive Land-Use Inventory and projection, highway traffic assignment, complete parking studies, accident analysis, street and highway physical inventory, capacity study, transit surveys and legal review. Of all of the studies completed thus far, the Travel Time Study has provided more useful information per man hours spent than any of the others.

The travel time data was inexpensive and simple to collect, easy to analyze, and is valuable in many applications. City and county employees gathered the data in making their work trips to and from home, requiring very little time during regular office hours. The analysis resulting from the travel time data is simple for the layman to understand. Travel time information can be related to similar data from other cities; comparison can be made between congestion and accidents, between one street section against another street section, and between mass transit and private automobile. Not only can different sections of the street system be rated but the level of service afforded to whole areas or districts within the community can be determined.

The Travel Time Study, like all the other studies done in the Nashville Transportation Study, was based on the Street Use Plan. The Street Use Plan as recommended by the National Committee on Urban Transportation is simply an objective classification of all existing streets into freeways, major arterials, collectors or local streets depending on their existing use. The freeways, major arterials and collector streets are further broken down into control sections of from one-half to two miles in length. A control section is generally defined as a section of street which has the same width, traffic volume, land use characteristics and pavement type throughout its length. These control sections provide the basis for the analysis of accident information, travel time data, traffic volume, physical characteristics and financial tabulations, and allows relationships to be established between all of these variables.

Travel times were measured on 149 major arterial street sections totaling 141 miles in the Nashville urban area during the evening peak hour[1] by use of an observer with a stopwatch in a car moving at an "average" speed. At least six passes were made on each street but in some cases, depending on the variation between individual observed travel times, ten passes were made. Measurement was generally made in the peak direction (outbound) although on circumferential streets and a few radial streets, both directions were measured.

There is nothing new in measuring travel time information on urban street systems. Too many times, however, the only analysis that is made is similar to that shown in Figure 1. While the information presented in the time contour or isochronal analysis is quite useful for a number of purposes, it reveals very little about the relative level of service on various sections of the street system. Figure 2, on the other hand, clearly points up those sections of the major street systems which allow easy movement and those which are congested during the evening peak hour. It is true that normally each traffic engineer familiar with his city's street system will intuitively know those sections of street which are most congested. However, besides the confirmation of his intuitive knowledge

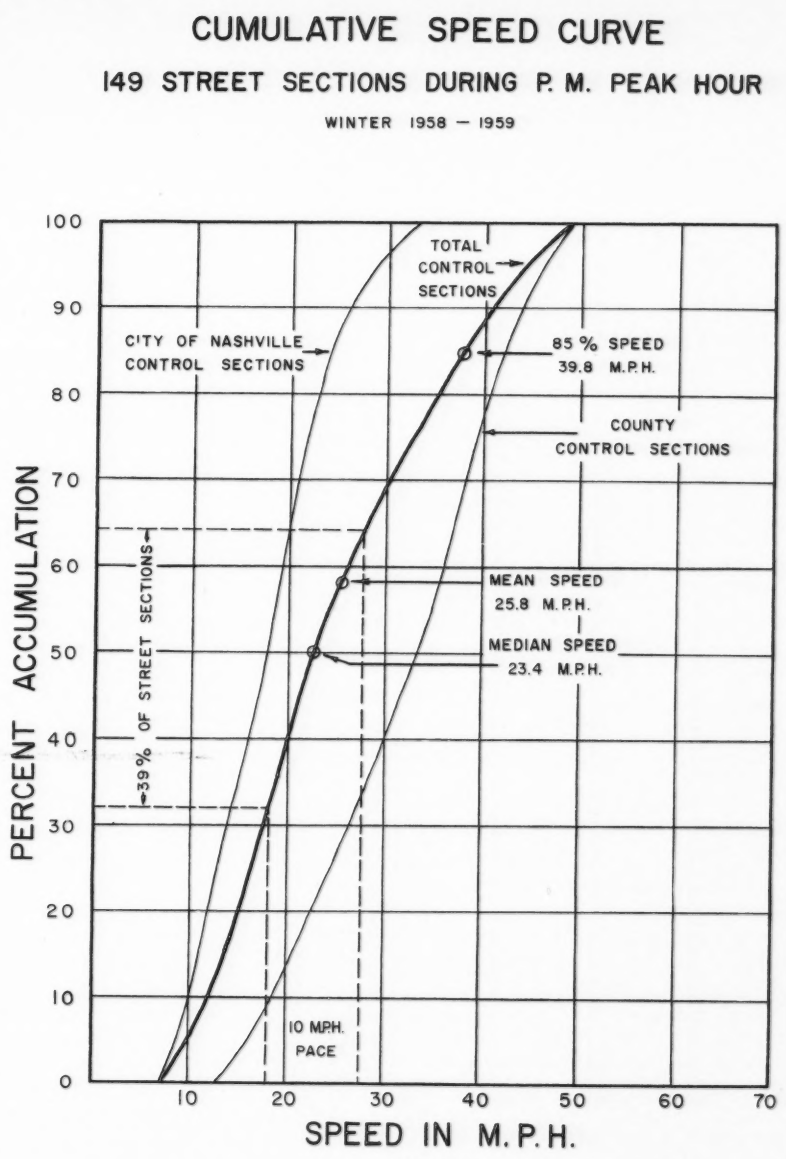


Figure 3

1. Travel time during off peak and morning peak has also been collected but extensive analysis has not yet been completed on this.

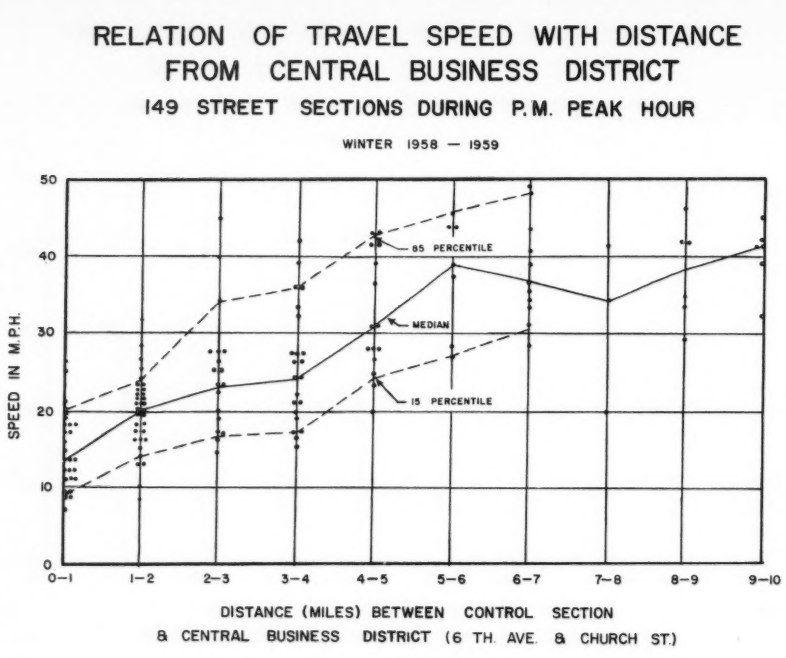


Figure 4

that this analysis provides, it is also very worthwhile in meetings with lay people in discussing regulatory or operational measures.

One of the deficiencies of the analysis shown in Figure 2 is that it does not take into account the different traffic volumes using the various sections of the street system. For example, Figure 2 might show that two given street sections have traffic moving at only 5-10 miles per hour during the peak period indicating that one section is as bad as the other from a performance standpoint. However, one of these two sections might be carrying 3,000 vehicles during the peak hour while the other only carries 800. It is apparent that the total delay would be far greater on the heavier traveled street. What is needed is a method of determining the total delay on a street section taking into account both the travel time deficiency and the number of motorists who must suffer the results of the deficiency. Implicit in this requirement is a need for a definite travel time standard or a definite standard speed for various classes of streets. The National Committee on Urban Transportation has suggested that standard overall peak hour speeds might be adopted as follows:

35 MPH for Expressways
25 MPH for Major Arterials
20 MPH for Collectors
10 MPH for Locals

In the Nashville Study the suggested 25 MPH major arterial standard speed seemed too high when compared to the speeds actually being attained. It seemed unrealistic to establish a standard speed that is well beyond the city's ability to attain in most cases. On the other hand, if the standard is set too low, then it will be difficult to separate those street sections offering good service from those having poor service. Figure 3 proved useful in establishing the standard peak hour speed for Nashville's major arterial streets. From this curve it can be seen that 40 per cent of the street sections tested operated at 20 MPH or below and 50 per cent at 24 MPH or below during the peak hour. This further confirmed the belief that 25 MPH was perhaps an unrealistic goal, particularly near the downtown area. One item of real concern was the result of the travel time measured on a recently constructed major arterial street near the downtown area. This street was designed to high standards and included two twelve-foot running lanes in each direction, a sixteen-foot median strip, plus adequate parking lanes on either side. The speed actually attained on this section of new street during the peak hour was less than 20 MPH. Since it was felt that this street was designed to standards as high as we could ever hope to attain anywhere near the downtown (excluding expressway or freeway facilities) it was decided that we should possibly adopt a reduced speed standard for the downtown area. Figure 4 confirmed this belief. It can be seen from this graph that the average speed for major arterial streets within one mile of downtown is only 13 MPH and only a small fraction attain speeds equal to or greater than 25 MPH. Beyond one mile, but less than two miles, from downtown the average speed is 20 MPH or greater. While it is true that a given amount of traffic delay to trucks, buses, or other vehicles is as expensive near the downtown as it is anywhere else, it is also true that eliminating this delay is vastly more expensive. Furthermore, it is felt that people are willing to accept more delay on surface streets near the downtown than they are in other areas of the community. For these reasons, it was decided that a standard speed of 15 MPH would be adopted for all the area within a one mile radius of the center of the Central Business District and that outside of this area a 25 MPH standard would be adopted.

A good argument can be made for the consideration of a third standard for major arterial streets which lie in urban areas but outside of areas of high density development. This new standard would apply to much of the major street mileage running adjacent to post war low density residential neighborhoods. It is felt that Nashville may adopt a 30-35 MPH standard for such streets during its next travel time analysis.

The difference between the speed actually measured on a control section and the appropriate adopted standard speed gives a speed deficiency for this section. If this deficiency is converted from miles per hour to minutes per mile and then multiplied by the peak hour traffic volume for that section, the total delay per mile is found (vehicle minutes per mile). Figure 5 is a map showing the vehicle delay per mile for various street sections. Since this analysis takes into account both the speed of the section as well as the traffic using the section, it goes a long way toward highlighting the relative deficiency of various parts of our street system.

As easy to get and as useful as the information in Figure 5 is, it does have some shortcomings which should be pointed out. One weakness is that the travel time (and thus the minutes per mile factor) is measured only in the direction of peak traffic, whereas the traffic volume which was multiplied by the minutes per mile factor

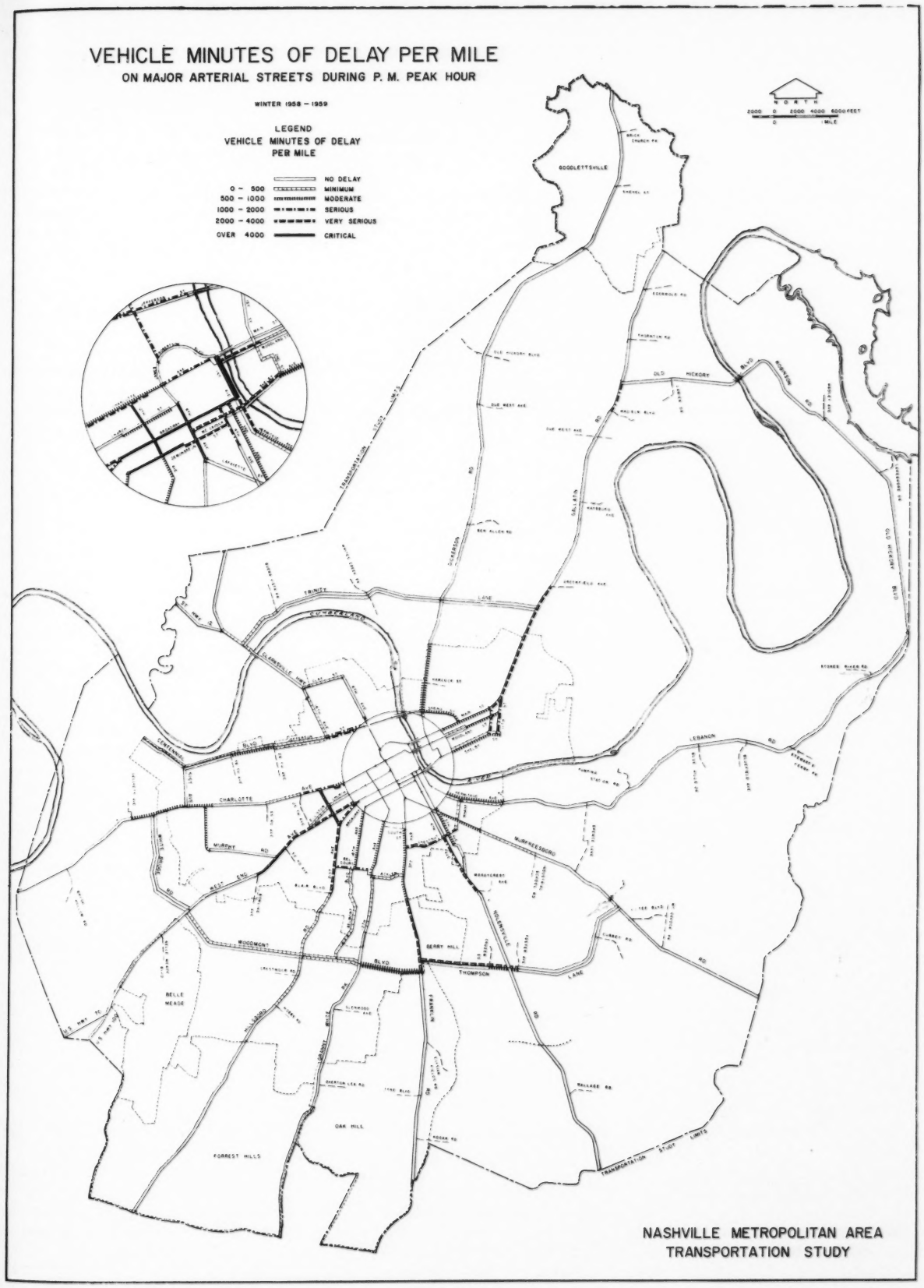

VEHICLE MINUTES OF DELAY PER MILE
ON MAJOR ARTERIAL STREETS DURING P. M. PEAK HOUR
WINTER 1958 – 1959
LEGEND
VEHICLE MINUTES OF DELAY PER MILE
0 – 500 NO DELAY
500 – 1000 MINIMUM
1000 – 2000 MODERATE
2000 – 4000 SERIOUS
OVER 4000 VERY SERIOUS
CRITICAL
NORTH
2000 0 2000 4000 6000 FEET
1 MILE
GOODLETTSVILLE
OLD HICKORY BLVD
OLD HICKORY
MADISON
GALLATIN
DICKERSON
TRINITY LANE
CUMBERLAND
CLARKSVILLE
CENTENNIAL BLVD
CHARLOTTE
MURPHY RD
WEST END
BLAIR BLVD
WOODMONT
BELLE MEADE
FORREST HILLS
OAK HILL
BERRY HILL
THOMPSON LANE
FRANKLIN
MURFREESBORO
NOLENSVILLE
LEBANON
WALLACE RD
TRANSPORTATION STUDY LIMITS
NASHVILLE METROPOLITAN AREA
TRANSPORTATION STUDY

Figure 5

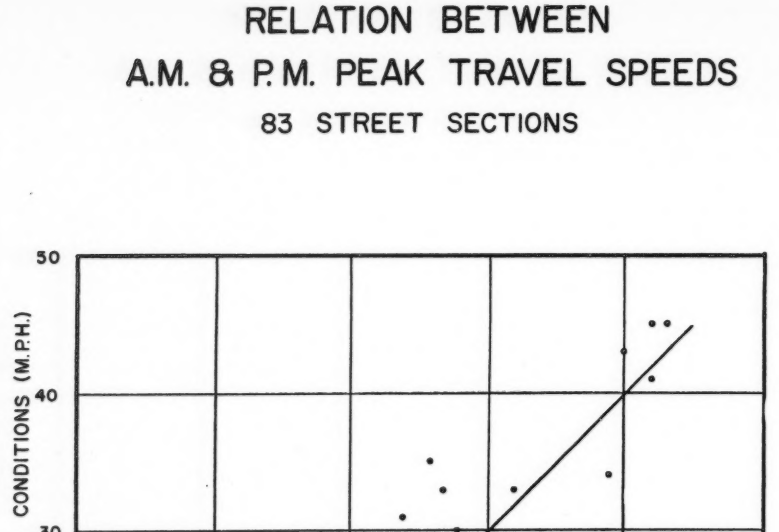


Figure 6

was two-directional in the case of a two-way street. It is felt that while this obvious error gives an incorrect total delay figure, that because streets which are congested in one direction are usually congested in the other during the same period, that the calculated relative delay will be sufficiently accurate using this method. The only way to avoid this error would be to measure travel times in both directions during the peak hour and then multiply by peak hour traffic in the appropriate direction. Determining this directional traffic would require considerable effort in itself and measuring travel times in the off peak direction would double the time required to gather the travel time information.

Another difficulty rises on streets which have reversible center lanes. On these streets traffic often moves slower in the off peak direction. For example, several of Nashville's major arterial streets near the downtown area are two-way, three-lane streets. The three lanes are controlled by lane lights which allow two lanes outbound during the evening rush hour. When measuring travel times on these streets, it was discovered that traffic moving inbound (off peak direction) moved slower than outbound traffic. Determining the vehicle delay rate in this case was solved by multiplying the inbound travel time deficiency by the inbound peak volume, multiplying the outbound deficiency by the outbound peak volume, and adding the product.

The peak hour delay shown in Fig. ure 5 is a very useful tool in determining relative priorities for street improvement, need for improved signal control, or other operational improvement. The layman can understand "delay" since he has personal experience with it daily. It is surprising the number of potentially lengthy arguments about "our street being the worst in town" that can be eliminated by the use of such a presentation.

Assigning a value to delay (e.g. $1.00 per hour) and computing the total cost of delay on a given section during one peak hour provides interesting results. Admittedly the calculated costs are somewhat arbitrary, but they do spell out the order of magnitude of economic loss sustained because of inefficient transportation.

One of the limitations of the analysis shown in Figure 6 lies in the fact that it is based only on the evening peak hour. Nothing is revealed about off peak delays which can be significant on some central city street sections while completely negligible on others. Neither is the morning peak hour evaluated even though there are some sections where the travel speed is more restricted in the morning peak hour than the evening. If it can be assumed that the peak and off peak travel times vary directly with each other and further that the morning peak and evening peak speeds vary directly, then the evening peak analysis is adequate by itself. If, however, there are sections where evening peak hour travel time is high while morning peak time is relatively low and vice versa, then evening peak hour analysis is not adequate by itself.

Off peak and morning peak travel times have been measured but not extensively analyzed as yet in the Nashville Study. The relationship between the peak and off peak travel times is shown in Figure 6. It is apparent from this figure that, in general, peak and off peak travel times do vary directly, but there are some individual street sections which depart widely from the general pattern. Figure 7 shows the relationship between morning peak and evening peak speeds. Again it is apparent that a definite relationship exists but that individual street sections depart substantially from the average. Volume studies show that on the average the morning peak hour includes about 8 per cent and the evening peak includes about 9 per cent of the day's traffic. However, there are some streets where the morning peak is higher than the evening. All of this seems to indicate that an adequate urban performance rating based on travel times probably should include some investigation of both the morning and evening peak hour travel speeds.

(Continued on page 24)

San Francisco Bay Area Transportation - 1960

By M. H. West
Division of Highways
Engineer of City and Cooperative Projects
San Francisco, California

LAST YEAR at the 24th Annual Meeting of the New York State Motorbus Association, Jane Jacobs, Associate Editor of "Architecural Forum," pointed out in her address that many traffic engineers are concerned solely with problems of street operations simply because there are no policies or goals behind their work having to do with over-all city planning.

If this situation exists, perhaps there is no need for the establishment of such goals. On the other hand, in many of our growing urban, metropolitan, and regional areas, a public policy, expressed in master planning and in financing of transportation and other related services, is needed as a framework for guiding the activities of the traffic engineer. It is of considerable interest to note the wide gulf that separates the prepared master transportation and fiscal plans from public policy which puts these goals into effect.

Before examining the need for the establishment of such goals in the San Francisco Bay Area, let us for a moment look into the future of cities as visualized by others.

Cities and Transportation Systems In the Year 2000

What will our metropolitan areas be like in the future? Ray Lackey, Associate Editor, "The Constructor," has summarized predictions made by editors of architectural, engineering and construction magazines. In June last year these predictions were sealed in the cornerstone of the new national headquarters of the Associated General Contractors of America in Washington, D.C. Mr. Lackey's summary gives this composite picture of man's physical environment in the 21st century:

1. "A city free of above-ground vehicle traffic; with low, spreading buildings of metal and synthetics, built on landscaped malls; with its power supplied by wireless transmission, or taken from the sun's rays; its water taken from the sea or, in the case of inland communities, from the air by dehumidifiers.

2. "Smokeless factories in the city that take their own power from the sun; with underground parking facilities, and landing platforms for helicopters.

3. "Workers in the city using fast, clean transit lines below the ground to get about the city or out to the clusters of private, spacious and efficient homes which will replace today's suburbs.

4. "In those homes, lighting as bright as a sunlit day, and lighting that can be used to alter the color and design of the interior with the flick of a switch; rooms of one-way glass offering complete privacy and unparalleled view of the outdoors, and other rooms of special kinds of glass to admit some of the sun's rays and keep others out.

5. "Connecting the city with the countryside and other cities, superhighways and expressways, many of them double-decked, with built-in heating devices to keep them free of ice and snow.

6. "Airfields which will be built away from the city, and which will be small cities in themselves; which will be connected with the metropolis by small plane and helicopter service."

Whether any or all of these will come to pass will depend upon many things, including technical and cultural advances, future standards of living, community plans, and transportation facilities planned and provided under public policy.

The San Francisco Bay Area, as such, has no regional plan including fiscal matters adopted as a matter of public policy. Its cities and counties do have adopted master plans. A regional rapid transit plan has been prepared. A statewide freeway plan, including the Bay region, has been prepared and is now under consideration by the California Legislature for approval as public policy.

Collectively, the Bay Area planning commissions and directors have prepared the planning objectives of this area.* These are cited:

1. "To make possible the optimum development of both the region as a whole and its individual communities.

2. "To preserve and enhance the unique and distinctive physical features and advantages of the Bay Area.

3. "To improve the essential features and functional and geographic organization for economic and social activity in the region.

4. "To maintain and strengthen the interrelationships and mutual interdependence among the various communities and centers.

5. "To provide for human needs for working, living, play, and public spaces, both for the region as a whole and for each individual community.

6. "To maximize individual freedom of choice of working place, dwelling place, and type of leisure-time activity."

It is reasonable to assume that in the fulfillment of these objectives, there is, or soon will be, a need for direction under public policy that will result in a plan of population densities and arrangement of land use that will not generate more traffic than the transportation facilities will handle.

Facts Affecting Transportation Plan

Here are some inescapable facts that will affect the adoption of transportation plans and fiscal policies:

*A Report to the San Francisco Bay Area Rapid Transit Commission "Regional Rapid Transit," Parsons, Brinckerhoff, Hall & Macdonald, 1955.

1. The average living standards are rising at an unprecedented rate.

2. The average population densities are falling.

3. The average distances between homes and shops, offices, and factories are increasing.

4. The cores of the Bay Area cities are more active than they ever have been, although the rates of growth are considerably less rapid than those of the newly developed suburban centers.

5. Business districts have occurred at junctions of high capacity transportation routes.

6. The cost of providing services to a cluster of business establishments is much less than for scattered establishments.

7. High density public clusters, such as in San Francisco and in Oakland, attract relatively large numbers of people.

8. It is mathematically impossible to accommodate in private cars the number of visitors and workers the high density business clusters must attract to support its variety of choice.

Trends

These trends will affect adoption of the planners' objectives:

1. Decentralization of the core of the major cities of the Bay Area has not occurred.

2. Expanding firms are locating in outlying areas.

3. New firms are initially establishing their operations in suburbs.

4. There is indication of increasing specialization in the regional center. (San Francisco and Oakland)

5. There is indication of expansion of standardized activities outside the regional center.

Predictions

Based upon a study of the impact of suburban development upon residents' travel to the central business district of Washington, D. C. as reported in the April 1959 issue of "Public Roads," it would be expected that in the Bay Area:

1. Persons to be employed in the regional center (San Francisco and Oakland) may increase at a rate far less than the rate of increase in population in the regional area.

2. Retail sales in this regional center, on a constant dollar basis, probably will decrease.

3. The number of trips to the central business districts of San Francisco and Oakland, by all modes of travel, will increase; but the proportion of total trips by residents of the region to these districts will decrease.

4. The existing trip patterns will be reoriented and new patterns will be created.

5. The proportion of trips by mass transit of the total will vary in proportion to the level of service rendered by such facilities and the needs and choices of the travelers.

Based upon the Division of Highways studies in connection with the development of the California Freeway System, it is expected that by 1980 if the freeway system proposed by the Department of Public Works in 1958 to the Legislature for the Bay Area were in operation, the freeway system would accommodate nearly 3/5, or 58 million average daily vehicle miles, of the total 99 million average daily vehicle miles generated in the nine county Bay Area. This would leave approximately 2/5, or 41 million A.D.V.M. to be accommodated on other streets and highway facilities. This accommodation would be an increase of about 5 million A.D.V.M. over the 36 million A.D.V.M. on all streets, roads and highways existing in 1957. Presumably, much of the future travel off the freeway system would be on new or improved high capacity arterials.

The vehicle traffic generated in the Bay Area in 1980 is expected to be about 2 3/4 times the traffic generated in 1957. This does not mean that the number of trips between each pair of 1957 origins and distances would increase 2 3/4 times. If such were the case, intolerable congestion would result. The more likely occurrences would be a relatively small increase in number of trips to destinations in the present business districts, a re-orientation of the existing trip patterns in direction, and in distance, and the addition of many new trips between presently non-existent traffic attractors.

The California Freeway System Report recognizes that in urban areas growth patterns are changing very rapidly and that there will be major changes from current estimates. However, based upon current estimates of land use and upon the compound engineering judgment of many, the freeway system in the Bay Area as proposed to the Joint Interim Committee on Highway Problems in 1958 would be expected to provide for continuity of travel into, through, and around urban areas, provide for large traffic movements between population and industry within urban areas, and provide for needed traffic capacity in the traffic corridors.

If the freeway plan is made a matter of public policy by the Legislature, this action will help to narrow the gap between such policies expressed by master and transportation plans and the unimplemented plans themselves.

When the framework of the total transportation plan is developed and adopted, the traffic engineers as well as other professional engineers and planners will not act in the atmosphere of frustration experienced by the mother of Epaminondas.

Coming Events

February 18-20—NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS—

Winter Meeting, Broadview Hotel, Wichita, Kan. Contact: Kenneth E. Trombley, NSPE, 2029 K Street, NW, Washington 6, D.C.

March 6-8—SOUTHERN SAFETY CONFERENCE & EXPOSITION—

Joint Headquarters Robert Meyer and George Washington Hotels, Jacksonville, Florida. Contact: W. L. Groth, P.O. Box 8927, Richmond, Va.

March 23-25 — NORTHWEST HIGHWAY ENGINEERING CONFERENCE—

Oregon State College campus, Salem, Oregon. A combination of the former Northwest Traffic Engineering Conference and the Northwest Road Building Conference. Contact: J. Al. Head, Assistant Traffic Engineer, Oregon State Highway Department, Salem, Ore.

May 10-12 — NATIONAL HIGHWAY USERS CONFERENCE—

Eighth Highway Transportation Congress, Mayflower Hotel, Washington, D.C. Contact: Arthur C. Butler, NHUC, National Press Building, Washington 4, D.C.

June 8-11—NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS—

Annual Meeting, Statler Hotel, Boston, Mass. Contact: Kenneth E. Trombley, NSPE, 2029 K Street, NW, Washington 6, D.C.

September 12-16 — INSTITUTE OF TRAFFIC ENGINEERS—

30th Annual Meeting, Edgewater Beach Hotel, Chicago, Ill. Contact: ITE, 2029 K St. N.W., Washington 6, D. C.

September 26-30—FIFTH INTERNATIONAL TRAFFIC STUDY WEEK—

Nice, France. Contact: M. H. Perlowski, Secretary to the OTA/PIARC/IRF Joint Committee, 32 Chesham Place, London S.W.1, England.

Changing Patterns In Grand Rapids

By C. L. Simmons
Traffic Engineer
Grand Rapids, Michigan

PROGRESS in a town means change in the habits of the people, change in the location of industry, change in the routing of traffic to those locations, and sometimes changing the terminal facilities of those new locations for the motor vehicle. Certain minor routes in a city may sometimes change into more important thoroughfares because a group of stores, or industry, has provided parking with an access, or an exit off a minor street, increasing the flow of traffic; or the building of a new school has changed the traffic pattern at a series of intersections in a specific locality.

After taking numerous vehicle volume counts, the Traffic Engineer may find it necessary to reverse existing stop signs at one or more of the intersections along the route. This is always a "ticklish proposition." There are several ways of doing it; none of them seem to do the job without the old problem of accidents, and "how do you break the habits of people who have traveled those intersections for years without having accidents."

Parallel parking lane in Grand Rapids.

One method which has been used for years is to make a four-way stop of the intersection, thus bringing everyone to a stop, and then after the habit has been formed, to pull the old stop signs out and leave the new signs in. This has several disadvantages, the main one being that the drivers approaching from the direction where a stop sign has just been pulled out will "sail" right across the intersection, especially if they are not familiar with it, while the driver who has been going through this intersection for the past two months knows now that there has been a four-way stop installed and drives right out in front of an approaching car, causing a collision. There is also the driver who fails to stop for the new stop sign because for years he has been traveling through here without having to stop and then has a collision with the car which has started up from the cross street and which has already stopped for his stop sign because the driver knows that an additional stop sign has been placed on the cross street.

Another method tried in Grand Rapids with reasonable success is to install new stop signs in the street which has become the secondary street, and to pull the old stop signs on the cross street out at the same time the new signs are installed. In order to prevent an accident by those drivers who have traveled this intersection for so many years without stopping, two stop signs, back to back, were installed at each side of the intersection, and directly on top of the signs, a flasher signal of the battery-operated type was installed. This battery-operated signal has a 7″ lens and can be seen from both directions. The life expectancy of the batteries is about 1400 hours. This meant that a flashing Stop indication was on the near right and far left of the crossing. Stop bars, and the word "Stop" were painted on the street, and parking for at least 20′ back of the intersecting crosswalk was removed for good sight distance. The flashing light and battery will be removed when the battery runs down, leaving the stop signs only.

In this type of installation, there is always the danger of additional rear-end collisions occurring because those who have been in the habit of stopping for the stop sign will continue to do so for as long as a month after the stop sign has been removed. Drivers traveling this intersection for the first few times, finding no stops, are sometimes suddenly confronted by a vehicle which, for no apparent reason, has stopped at the intersection, even though the stop sign is no longer there.

New Parking Control in Grand Rapids.

Another new thing which has been tried in Grand Rapids is an additional parallel parking lane in the center of the street. This street is perpendicular to the central business district, and is 64′ wide. Parking is allowed on both sides of the street. There is a medical building and a clothing store on one side of the street, the YWCA and the Grand Rapids Press building on the other side.

We have had numerous complaints in the Police Department and in the Traffic Engineer's office regarding the high speed on this street. It is a one-way street starting at a 5-way intersection, and because of its width, it is difficult to time for pedestrians to cross this wide street.

Parking is at a premium in this location because of the proximity of the traffic generators, and the lack of commercial parking lots in this area.

It was necessary to find an economical solution for additional parking facilities, and one which would be acceptable to a budget-conscious City Commission. Therefore, the City Commission and City Manager authorized the Traffic Engineer to install a parking lane on one side of the street, protecting the parkers with a 5′ sidewalk, and installing parking meters as shown in the picture illustrating this installation. The parking along the curbs on both sides remained as it was, and in the one block, there were 11 new parking spaces as a result of this installation.

The total cost of the installation was $78.79 per car space.

The results of this installation indicated that speeds were reduced on the street, and there was an island on one side of the street which reduced the walking distance of the pedestrian during the "Walk" period, and also provided a place for him to stand. It reduced the points of conflict of the motor vehicle, and provided for parking in a critical area.

The whole installation could be removed in the matter of two hours if the volumes on the street indicated the need for the additional parking lane.

Shortly after the installation of this parking lane, two reporters from the Grand Rapids Press took a survey of those people parking in the lane. In the survey the reporters asked the parkers:

(a) Their first destination downtown.
(b) How long they expected to park in the space.
(c) Where they formerly parked.
(d) What their opinion was of the arrangement.

They received comments and opinions from—"Very good," "Good idea," "Very convenient," "Excellent idea," "It works fine," "I like it fine" TO: "I like the additional parking, but do not approve of narrowing the street."

The two reporters making the survey found that out of 31 people parking, 29 of them were very definitely in favor of the arrangement, and 2 were against the plan because they did not like the loss of a wide street. 18 of the people parked on the street in the downtown area prior to the installation of this parking lane, while 13 of them parked in commercial lots or ramps.

A statement from the Police Officer enforcing the meters indicates that only two overtime parking violations were found in three days.

The first block has been installed for approximately one month and has met with wide acceptance. The remaining section could park an additional 40 cars if the centerlane parking is to be continued.

Charles Tilden Dies at 86

Charles Joseph Tilden, Professor Emeritus of Engineering Mechanics at Yale University's Sheffield Scientific School, and Honorary Member of ITE, died in Sydney, Australia. He divided his time between New York and Australia. His age was 86.

Mr. Tilden retired in 1940 from his post after twenty-one years at Yale. He conducted a number of studies on highway traffic, was a former president of the Eno Foundation for Highway Traffic Regulation, and was active in research on which speed laws were based. He was also from 1936 to 1942 a member of the Connecticut Highway Safety Commission.

Mr. Tilden was born in Brookline, Mass., graduated from Harvard and received an honorary master's degree from Yale in 1919. He was an engineer with the New York Rapid Transit Commission from 1897 to 1903.

After two years at Cornell University, where he was instructor in civil engineering, he went in 1905 to the University of Michigan, leaving it in 1911 as junior professor of civil engineering. He was then Professor of Civil Engineering at Johns Hopkins, until 1919, when he went to Yale.

As an engineer, he was commissioned captain in the Officers Reserve Corps in 1917, and served with the Signal Corps from 1942 to 1944. From 1922 to 1942 he had been highway research specialist with the Bureau of Public Roads in the Department of Agriculture.

He was a member of the American Society of Civil Engineers, a Fellow of the American Association for the Advancement of Science, and member of the Harvard Club of New York.

Surviving are his widow, Mrs. Phillis Wharton Tilden; a daughter, Mrs. Horace G. Hitchcock of Bronxville, N. Y., and four grandchildren.

Possible Traffic Help For Small Towns

By Sidney E. Doyle
City Planner
Alabama Planning & Industrial Development Board

Modern vehicle traffic demands are forcing even smaller municipalities to correct their street inadequacies. The logical approach, and in the long run the least expensive, is to employ a competent traffic engineer to make a survey of thoroughfares and traffic for the entire trade area and act on his recommendations for proper improvement. By employing professional talent the most needed improvements can be made in proper order by following listed priorities in the recommendations. If the community is very small and cannot afford professional advice, some simple improvements can be made to the street system which will tend to simplify traffic patterns and reduce accidents.

For these towns without the possibility of immediate professional help a study of the pattern of local traffic congestion and vehicle accidents will usually indicate which traffic and street problems to tackle first. Such a cursory study will usually result in a list of problems such as the following:

1. Improper types or placement of traffic signs.

2. Dog-leg intersections, where the motorist is required to travel on the thoroughfare he is crossing for a short distance before traversing from one side of the road or street to the other.

3. Lack of traffic controls where secondary streets intersect with highways or major arterials.

4. Lack of continuous streets to serve principal sections of the town, forcing traffic on tortuous routes, some of them through built up residential sections.

5. Lack of continuous "loop" street around the central business area, requiring U-turns and other unsatisfactory travel patterns.

6. Lack of adequate area for off-street vehicle parking in commercial and school areas and poor control of ingress and egress in such sections where stopping or parking is a major factor.

7. Lack of regulation to control merging and weaving traffic at peak hours at large schools, industrial plants and commercial areas.

8. Lack of regulations to limit parking on streets according to the effective pavement widths and traffic flows.

9. Changes of pavement widths on major streets which result in a slowdown of traffic at various places along the route.

The above list of traffic problems is typical of those which beset most cities, both large and small. A competent traffic engineer, whether a member of the official municipal staff or as a part-time consultant, can greatly relieve the situation by making recommendations for improvement. Most cities plan for such improvement by including needed projects in the local public works program budget. The most important improvements are usually analyzed in the local major street plan and the traffic control study. But the town without professional help can start to erase the most obnoxious and pressing problems for temporary relief.

For such municipalities without the services of a competent traffic engineer, the most expedient step is to divide problems to be studied into two categories: street improvements and traffic control improvements.

Street improvements include: correcting staggered street crossings and intersections (such as the dog-leg illustrated in Fig. 1) ; cut through interrupted important streets to provide continuous major thoroughfares; develop a major street of constant width around the central business area, more than a block away for the commercial center; acquire more right-of-way or add pavement width to assure adequate and constant width of travel lanes on all important routes; and develop and carry out a long range plan for off-street parking area for all places where activities create a demand for considerable long or short period vehicle parking.

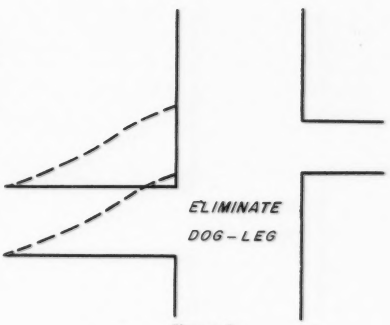


Figure 1

Traffic control improvements are usually more involved and most of these made without the services of a competent traffic engineer should be done with the understanding that they will be of a temporary nature to cope with emergencies until such professional services can be obtained. Therefore, expenditures for such traffic control devices should be held to the bare minimum. General advice on the standards for location of traffic control signs can be given by many of the companies which manufacture such signs. Regulations for the control of traffic passing or going to schools during hours in which students are going to or leaving the school can be adopted as a temporary or emergency measure. This type of control may be instituted as one-way traffic limited to the time periods necessary. Such regulations can be used to minimize merging and weaving traffic flow during peak hours

Note: This article was prepared in collaboration with the late W. O. Shrader, City Traffic Engineer of Montgomery, Alabama.

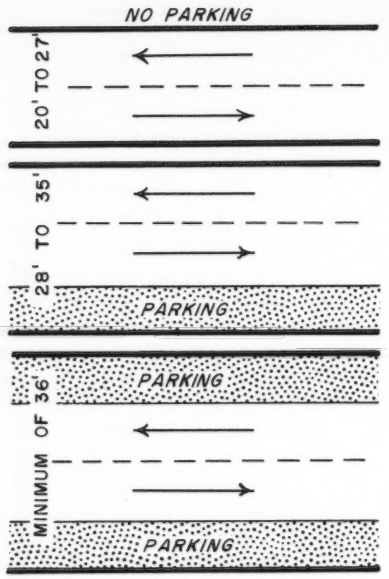


Figure 2

in very active commercial areas and at large industrial plants, especially at the beginning and the end of employees' working hours.

Another type of traffic control, even more important to many older municipalities is the limitation of on-street parking to one side of the street or prohibiting it altogether according to actual pavement width. One such pattern of parking limitation is shown in Figure 2. More complex types of traffic control, such as the installation of traffic lights should be left to the recommendation of the experienced traffic engineer. This person should make his recommendation after proper study which will enable him to specify the type, design and synchronization of lights. Many other types of control involve high speed highways and their major interchanges, grade separations, special access roads and deceleration lanes. All these require specialized knowledge and the uninformed layman (even though he be a local official) should not attempt to plan or develop any of them.

Small municipalities without means to employ consultant services of a traffic engineer can usually take some progressive steps to alleviate the most worrisome problems such as listed above. Local officials and civic organizations can team together to make corrections in straightening major streets so that effective pavement widths continue at the same width. These officials and planning commissions can require that residential streets with blocks longer than 600 feet in length have at least 60 feet of right-of-way, that shorter streets and culs-de-sac have a right-of-way not less than 50 feet, that intersections of one street with another are near to 90 degrees, and that major streets serving industrial or large commercial sections or other very active land-use areas have rights-of-way adequate to both present and estimated future traffic. These are projects which the townspeople can help to expedite and sometimes involve mainly the elimination of trees alongside of pavements, the moving of a sidewalk or the purchase of a small strip of land on one side of a road or street. Elimination of traffic on either one or both sides of narrow streets, in accord with a pattern such as shown in the sketch, is also a possibility which can be accomplished as a temporary measure. However, it is most certain that the most satisfactory and most economical procedure in the long run is the employment of a competent traffic engineer to make an overall study and over-all approach to the entire future street and traffic pattern.

TRAVEL TIME *(Continued from page 18)*

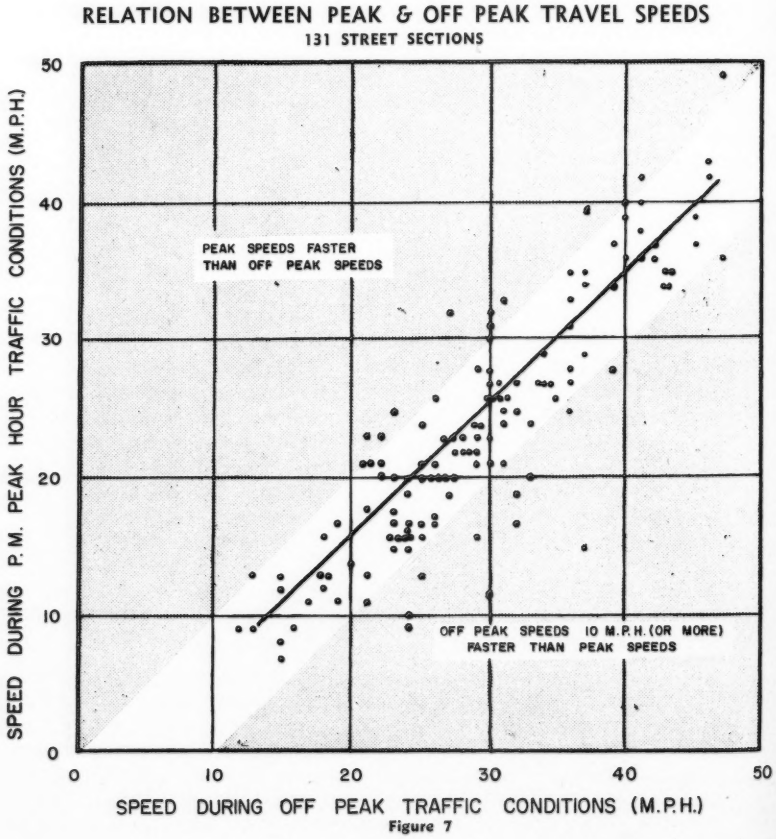
The following statements summarize the conclusions reached regarding the merits of the Travel Time Study.

Advantages

1. Can be presented to show relative level of service being rendered by major streets to various areas in the community.
2. Can point out sections of the major street system which are the most efficient from the standpoint of travel time.
3. Information is simple and inexpensive to collect.
4. Analysis of travel time is easily understood by lay people.
5. Information gained is versatile and can be used in public meetings, determining regulatory measures, in designing control devices as well as street improvement programing.

Weaknesses

1. Analysis of delay depends on a somewhat arbitrary selection of "standard" travel time.
2. Determination by field personnel of what is "average" speed on a street section is difficult in some instances, on multi-lane streets where one lane moves at a significantly higher speed than another.


RELATION BETWEEN PEAK & OFF PEAK TRAVEL SPEEDS
131 STREET SECTIONS
PEAK SPEEDS FASTER THAN OFF PEAK SPEEDS
OFF PEAK SPEEDS 10 M.P.H. (OR MORE) FASTER THAN PEAK SPEEDS
SPEED DURING P.M. PEAK HOUR TRAFFIC CONDITIONS (M.P.H.)
SPEED DURING OFF PEAK TRAFFIC CONDITIONS (M.P.H.)
0
10
20
30
40
50
Figure 7

Traffic News

TE Seminar Scheduled At Traffic Institute

Methods of reducing expanding motor vehicle traffic problems through improved research, control, and planning, will highlight discussions at an intensive three-week traffic engineering seminar to be held March 7-25, 1960, at the Traffic Institute of Northwestern University, Evanston, Illinois.

Planned to help broaden the professional knowledge of traffic engineering personnel, the three-week seminar is being presented by the Institute in cooperation with the Midwest Section, Institute of Traffic Engineers.

The seminar will be especially valuable for city and county engineers, junior traffic engineers in larger state and city departments, and those working on a professional level in related fields, according to George W. Barton, the Traffic Institute's director of traffic engineering.

The subject areas to be covered, with instruction conducted by university staff and leaders in the traffic and highway engineering field, include: "Methods of Research and Analysis," such as procedures for obtaining reliable data about the current street and highway situation, ranging from volume counts and origin-destination studies to analysis of accidents; "Regulation and Control Techniques," which cover making the best use of existing facilities by employing one-way traffic systems, unbalanced lanes, curb parking prohibitions, and the use of traffic control devices; and "Planning for Future Growth" to cover the planning and design aspects of traffic engineering.

Tuition for the course is $195 plus $15 for a student study manual. Attendance is limited to persons with sufficient educational or experience background so that they can profit from the course content. Applicants should meet one or more of the following registration requirements:

1. An engineering degree from a college or university or engineering experience on a professional level as an alternate for education.

2. Current employment on a professional level in a traffic engineering office or organization.

3. Employment on a professional level in a department of public works or as a city engineer with traffic engineering responsibilities.

While the seminar has been designed for personnel attached to state or municipal public works or engineering departments, and, therefore, is not open to police officers in general, police officers who meet the above requirements and wish to attend as engineers may do so.

In addition to instruction and discussion sessions, those attending the seminar will have an opportunity to talk over any particularly difficult traffic problems they may have.

Application should be made to the director of training, Traffic Institute of Northwestern University, 1804 Hinman Ave., Evanston, Illinois.

Planning Conference Held at Texas A & M

Seventy-nine persons representing 28 cities throughout Texas, 14 divisions and districts of the Texas Highway Department, the Bureau of Public Roads and the Automotive Safety Foundation attended a two-day conference on Planning City Traffic Improvements, November 18 and 19, 1959 at A. & M. College of Texas at College Station, Texas. The conference was sponsored jointly by the Department of Civil Engineering and the Texas Transportation Institute at A.&M. College in cooperation with the Texas Section, Institute of Traffic Engineers,

Among the speakers at the recent conference on Planning City Traffic Improvements on the A&M campus were Al M. Voorhees, Automotive Safety Foundation, Washington, D. C.; George Deiter, City of Waco; R. T. Gregory, City of Waco and Dale Marvel, Texas Highway Department, Houston.

the Texas Municipal League, the Texas Highway Department, and the Automotive Safety Foundation. The general subject material of the instructional program included the following:

Cooperative Effort in the Street Traffic Problem—City, County, State; City Street Systems and Their Functions; Service Provided by Existing Streets; Standards of Street Design and Service; Geometric Design and Adopting Design Standards; Operation and Control; Making Better Use of Existing Streets.

The conference was conducted at a very practical level. The program was developed as a discussion of the treatment of problems of planning city traffic improvements encountered by the typical city of 10,000 to 100,000 population class. To add a note of realism, the conference was opened with a mock city council meeting where a major street improvement program

In the opening session of the conference, a city street improvement proposal was discussed by members of a mock city council before presenting the problem to city and highway department engineers. Members of the council are, left to right, Joe Wright, THD, Austin; R. T. Gregory, City of Waco; George Deiter, City of Waco; Walter Klapproth, City of Austin; C. J. Keese, A & M College and Fred Sandlin, City of Bryan.

was discussed by the council members. The discussion that followed pointed up all the considerations necessary in carrying to completion the planning of such an undertaking.

The conference was conducted by the following officials: Charles J. Keese, Professor of Highway and Traffic Engineering, A. & M. College; Charles Pinnell, Assistant Professor of Highway and Traffic Engineering, A. & M. College; Neilon J. Rowan, Assistant Professor of Highway and Traffic Engineering, A. & M. College; and Donald E. Cleveland, Assistant Research Engineer, Texas Transportation Institute, A. & M. College. Speakers—Earl Rudder, President, Texas A. & M. College (welcoming address); Frank Frey, Urban Engineer, Texas Highway Department, Austin; L. P. Cookingham, City Manager, City of Fort Worth; J. M. Page, Division Engineer, Bureau of Public Roads, Austin; Al M. Voorhees, Traffic Planning Engineer, Automotive Safety Foundation, Washington, D.C.; Paul Tutt, Supervising Designing Engineer, Texas Highway Department, Austin; Dale Marvel, Traffic Engineer, Texas Highway Department, Houston; R. H. Oliver, Senior Traffic Engineer, Texas Highway Department, Corpus Christi; Clyde Lee, Professor, Department of Civil Engineering, University of Texas, Austin; Eugene Maier, Director, Department of Traffic & Transportation, City of Houston; George Dieter, City Engineer, City of Waco; W. H. Klapproth, Traffic Engineer, City of Austin; and R. T. Gregory, Traffic Engineer, City of Waco.

Insurance Institute Elects Officers

Thomas C. Morrill, vice president, State Farm Mutual Automobile Insurance Company, Bloomington, Ill., has been elected chairman of the board of governors of the Insurance Institute for Highway Safety. He succeeds Guy E. Mann, senior vice president of Aetna Casualty and Surety Company, Hartford, Conn. Mr. Morrill was elected for a one-year term. He will serve as chairman of the Institute's executive committee of which Mr. Mann and Mr. Dwight M. McCracken, vice president, Liberty Mutual Insurance, Boston, Mass. are the other members.

Russell I. Brown was re-elected president of the IIHS and Richard O. Bennett was re-elected secretary-treasurer.

NCUT Names New Chairman; Issues New Manuals

Mr. O. W. Campbell, County Manager, Dade County, Florida, was elected Chairman of the National Committee on Urban Transportation for 1960 at its Annual Business Meeting on Friday, November 6th. Mr. Campbell succeeds Mayor Ben West, Chairman of the Committee during 1958 and 1959.

Mr. Christian H. Kahl, County Executive of Baltimore County, Maryland is the new National Committee representative of the National Association of County Officials. Mr. Kahl succeeds Mr. Donald C. Scribner, Treasurer of Fulton County, N. Y.

Two new procedure manuals — 6B, Cost Accounting for Streets and Highways, and 10A, Developing Project Priorities for Transportation Improvements — are available. The prices are 6B, $2.00, and 10A, $1.00. All orders should be placed with the Public Administration Service, 1313 East 60th Street, Chicago 37, Illinois. Exclusive of the Guide Manual, the new price for the complete set of 17 procedure manuals is $28.00.

Mr. J. Burch McMorran, Superintendent of the Department of Public Works, State of New York, has been named Co-chairman of the American Municipal Association-American Association of State Highway Officials Joint Committee on Highways. Mr. McMorran succeeds Wilbur Jones, formerly Chairman of the Florida State Roads Commission. The Co-chairman for AMA is Mayor Ben West of Nashville, Tennessee.

A transportation needs study is being planned for Joplin. The project will be financed jointly by Federal, state and local funds. It is expected that necessary final agreements will be consummated in the near future.

Chattanooga, Tennessee, Salt Lake City, Utah and Jacksonville, Florida are also initiating the program. In each instance, the original cooperating agencies are the city, the state and the Bureau of Public Roads.

Several other cities have indicated that they will attempt to utilize the program. These are: Portland, Oregon; Houston, Texas; Memphis, Tennessee; Charleston, South Carolina; Fresno, California; Marshalltown, Iowa and Atlanta, Georgia.

AASHO Recommends Increased Vertical Bridge Clearance Standard

An increase in the minimum vertical clearance for bridges on the Interstate System from 14 feet to 17 feet was unanimously recommended by the American Association of State Highway Officials meeting in Boston. The recommendation now goes to the Secretary of Commerce for final approval.

It is understood that the AASHO action was taken at the request of the Department of Defense.

The highway officials estimate that the higher minimum bridge clearance standard for structures under construction or to be constructed will increase the cost of the Interstate program by about $300,000,000.

About 8,000 Interstate bridges have already been built to date under the 14-foot minimum standard and some of these will have to be modified to meet defense needs. It is reported, that in making these modifications, the objective is to have all bridges on Interstate rural sections, all those on belt routes around cities, and the structures on some few routes through cities conform to the new 17-foot minimum vertical clearance.

International TE Meeting Planned For 1961

An international traffic engineering meeting is being planned for Washington, D.C. in 1961, according to President Edward G. Wetzel of the Institute of Traffic Engineers. The meeting, probably under the joint sponsorship of the Institute and the European committee which has put on the International Traffic Study Weeks, is scheduled to be held August 24, 25 and 26, 1961. This will follow immediately after the Annual Meeting of the Institute, now scheduled for August 21-24 in Washington at the Sheraton Park Hotel.

Plans for the meeting are in the hands of an Institute committee headed by Burton W. Marsh. Other members are D. Grant Mickle, Fred W. Hurd, Charles W. Prisk, Robert O. Swain and David M. Baldwin. This group has been in touch with the Joint Committee of OTA/PIARC/IRF which has already conducted four study weeks in Europe and now has a fifth scheduled for Nice, France, in September

1960. Dr. R. J. Smeed of the Road Research Laboratory in England was in the U.S. in December and met with the Marsh committee in Washington, principally to discuss joint operation with the Institute of Traffic Engineers of the 1961 meeting.

Initial plans call for the Annual Meeting of the ITE to start on Monday, August 21, and extend through Thursday, August 24. The international meeting would start on Thursday, thus over-lapping with the last day of the ITE meeting, and end on Saturday, August 26. Programs of the two meetings would be integrated, and it is the hope of the committee that both many ITE members and many of the foreign visitors would attend both meetings.

President Wetzel pointed out that while the U.S. is generally acknowledged as the leader in the field of traffic engineering — having the greatest problems — much good work is being done in other countries. An international gathering will do much, it is felt, to bring to the attention of U.S. engineers the developments which are taking place in other parts of the world, as well as affording those from other countries a chance to learn from U.S. practice.

Discussion subjects are now under discussion, and an early announcement will be made of the program to enable those who must travel long distances to begin making plans.

Safety Coordinators Elect James R. Barrett

James R. Barrett, Albany, N. Y., has been elected president of the Association of State and Provincial Safety Coordinators. He is chief of the Police and Traffic Safety Bureau of the New York State Division of Safety.

Other officers elected at the recent annual meeting in Chicago are: Lt. Neil Boyd, safety director, Wyoming Highway Patrol, Cheyenne, first vice president; Robert A. Campbell, coordinator, Illinois Division of Traffic Safety, Springfield, second vice president, and Capt. Robert B. King, head of the Traffic Safety Division, Virginia State Police, Richmond, secretary-treasurer. The officers were elected for a one-year term.

The 63-member Association was organized eight years ago to bring state and provincial safety coordinators and others into close cooperation to further

(Continued on page 46)

TE Award for 1958 is presented to Mayor Thomas J. Monaghan (left) of Lancaster, Pennsylvania, by Michael J. Gittens, Past Director of District 2, ITE. Robert M. Chryst, Lancaster traffic engineer, is in the center.

Presentation of ITE Award to Michigan was made by Gene Barton, Director, District 3, ITE. Left to right are shown Governor G. Mennen Williams, Barton and Deputy Highway Commissioner Howard E. Hill.

New Appointments

Traffic Institute Appoints B. R. Caldwell

The appointment of Bernard R. Caldwell as director of the Traffic Institute Division of the Transportation Center at Northwestern University has been announced by President J. Roscoe Miller.

One of the nation's foremost police administrators, Caldwell had been commissioner of the California Highway Patrol until his retirement last March. He resides in Sacramento, Calif.

In announcing the appointment, Dr. Miller said: "During his long career in the field of traffic law enforcement, Mr. Caldwell has made outstanding contributions to motor vehicle traffic safety. His experience and ability make him eminently qualified to guide the Traffic Institute's program."

As a graduate of the Institute, Caldwell will be returning to familiar surroundings when he assumes duties as administrative head, effective January 15. He is a member of the 1937-38 class in traffic police administration.

Throughout most of his police career, the new director has devoted his energies to the reduction of traffic accidents through better law enforcement procedures. He began his career with the Los Angeles police department. Promoted up through the ranks of sergeant, lieutenant, captain, and inspector, he became deputy chief in 1941 and assumed command of the city's newly centralized traffic bureau.

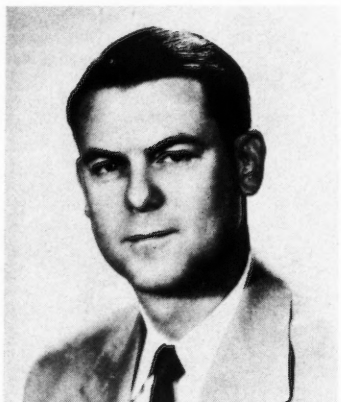
Under his administration of the traffic bureau, Los Angeles won first place among cities of 1,000,000 or more population in the national traffic safety contests of 1949, 1950 and 1951. The city also received first place awards in traffic law enforcement competition sponsored by the International Association of Chiefs of Police for the same years.

He was appointed commissioner of the California Highway Patrol in 1953, serving until his retirement in March, 1959. During his term at the head of the patrol, he continued his efforts toward the safer and more efficient movement of traffic through improved law enforcement.

Claire Joins Hoyt Associates

William H. Claire, Associate Member, ITE, has been named western representative for Homer Hoyt Associates, land economists and market analysts. Claire will serve as urban renewal and planning consultant.

In addition to his ITE membership he is a member of the American Institute of Planners and the ASCE. He is chairman of the latter organization's Committee on Urban Renewal.



A graduate of the University of Colorado, Claire was formerly assistant executive director of the Community Redevelopment Agency of the City of Los Angeles.

Title Changes

Edward M. Hall—is now Director of Transportation and Traffic Engineering for the City of San Diego, California — was Transportation Research Director.

R. B. Campbell Appointed To Program Planning

R. B. (Bob) Campbell (Assoc. Mem., ITE) has been named Program Planning Engineer for the Canada Department of Transport — Air Services — Ottawa, Canada.

Mr. Campbell obtained a Master of Engineering Degree (in Transportation Engineering) from the University of California in 1957. In 1958 he joined the Canada Department of

Transport as Engineering Assistant to the Director of Construction and held this post until his most recent appointment. Prior to joining the Federal Department of Transport, he spent ten years with Ontario Department of Highways in Toronto. In 1954 he was named Traffic Control Engineer and in 1956 he was promoted to Traffic Research Engineer. After returning from California in 1957 he was named Planning Research Engineer with the Ontario Department of Highways, and held that post until joining the Federal Department of Transport.

Eugene J. Clifford Joins Army Research Project

Eugene J. Clifford (Associate Member, ITE), traffic engineer for Richmond, Va. since August 1958, has joined the Army Transportation Corps engineering office at Fort Eustis. In his new post Clifford will work in a program involving the application of traffic engineering principles to the various transportation problems faced by the armed forces, fulfilling a long felt desire to engage in traffic research.

Prior to his Richmond assignment, Clifford worked as a private traffic consultant in Rockville, Md. Earlier, he had spent five years as traffic engineer for Montgomery County, Md. He is a Boulder, Colo. native.

Herman Batts Accepts Des Moines Appointment

Herman M. Batts (Assoc. Mem., ITE) has accepted the appointment as City Traffic Engineer for the City of Des Moines, Iowa.

Formerly the City Traffic Engineer of Fort Lauderdale, Florida, Batts organized that city's first traffic engineering agency in 1957. Prior to moving to Fort Lauderdale, he worked for the City of Detroit as traffic engineer for the Municipal Parking Authority.

Batts is a graduate of Case Institute of Technology and the Yale Bureau of Highway Traffic.

Job Changes..

Ernest W. Elliott — formerly Chief Planner with the Connecticut Survival Plan Project in Hartford, Connecticut; is now Highway Associate Engineer-Planning for the Connecticut Highway Department in Wethersfield, Connecticut.

* * *

William T. Melzer, Jr.—formerly Associate Signal Engineer with the Department of Highways & Traffic in Washington, D.C.; is now Engineer of Traffic Operations for Baltimore County in Towson, Maryland.

* * *

William Schempers, Jr. — formerly Junior Civil Engineer—Traffic with the City of San Diego, California; is now Traffic Engineer for the Automobile Club of Southern California in Los Angeles.

* * *

Paul M. Weckesser—formerly Senior Traffic Engineer with the Bureau of Traffic Control in Rochester, New York; is now Assistant Traffic Engineer with the New Jersey Turnpike Authority in New Brunswick, New Jersey.

Insurance Institute Names McEnnis

Leonard J. McEnnis, Jr., 8141 Keystone Ave., Skokie, Ill. has been named director of public relations for the Insurance Institute for Highway Safety, Russell I. Brown, president has announced.

McEnnis, a veteran of 24 years in the traffic safety field, assumed his new duties October 15 at the Institute's headquarters, 1710 H St. NW in Washington. Brown said McEnnis would be responsible for the public relations program of the Insurance Institute, established early this year by 532 casualty insurance companies to help cut traffic accidents.

Just prior to joining the Insurance Institute staff, McEnnis was director of publications for the Transportation Center at Northwestern University in Evanston, Ill. He had served more than 19 years in publications and public information capacities with the University's Traffic Institute, which recently was made a division of the Transportation Center.

McEnnis was on the publicity staff of the National Safety Council in Chicago from December, 1935, to April, 1940. A native of Houston, Tex., and a graduate of the School of Journalism of the University of Missouri, he was a reporter and rewrite man on the old Herald-Post in Louisville, Ky., from June, 1934, to December, 1935.

He served in the Navy during World War II and holds the rank of commander in the Naval Reserve.

New Publications

Traffic Control Devices for Canada

Published for the Joint Committee on Uniform Traffic Control Devices for Canada by the Canadian Good Roads Association, Ottawa, Ontario, Canada. 200 pp. (loose-leaf). 1959. $3.75, including revisions until Manual reissued, leatherette binder $2.50 extra.

This is the long-awaited Canadian manual on traffic control devices, hailed by some as the greatest single step yet taken in the progress of traffic engineering in Canada. It was developed by a joint committee sponsored by the Canadian Section of the Institute of Traffic Engineers and the Canadian Good Roads Association, with representation also from various levels of government and several national associations.

The Manual is in English and French, and is complete with illustrations. Covered are signs, signals and pavement markings. A glossary of terms is given at the end of the Manual. The publication is in loose-leaf form, and those who purchase the original will be supplied with revision pages until a new edition is published.

Urban Transportation Administration

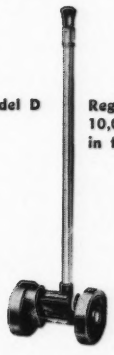
Thomas J. Seburn and Bernard L. Marsh, Yale University Bureau of Highway Traffic, New Haven, Connecticut. 1959. 134 pp. $3.00.

This is a report of a research project carried on in cooperation with the National Committee for Urban Trans-

FOR MANY TRAFFIC ENGINEERING USES

THE...

Shalda MEASURE METER



Model D

Registers up to 10,000 ft. in feet & inches.

Direct Reading • No Bells • No Counting
No Computing • Fast Reset to Zero

Special for the TRAFFIC ENGINEER:
Graduated in either 10ths or 12ths

The Shalda Measure Meter has been put to practical use by traffic engineers all over the nation. Its simplicity and accuracy has proven tremendously valuable in traffic engineering and has been accepted as a useful and practical tool.

- Rust, dust, moisture resistant, sealed in mechanism.
- Light, weighs only 3 pounds.
- Extension handle to 40 inches.
- Finest precision counters.
- Trouble free, factory lubricated.
- Handy, portable—only 23 inches long.

FAST!! SIMPLE!! ACCURATE!!

Automatically adds or subtracts.
No other machine has this feature.

Just walk it ahead—the precision computer clocks off feet and inches like an automobile speedometer...with equally simple reading. To subtract—just back it up.

At only $42.50 will pay for itself many times over.

Distributed by
B. G. REILLY COMPANY
P. O. Box 231, N. Scituate, R. I.
— Dealer Inquiries Invited —

portation. It was designed to study ways in which governmental organization can best serve the needs of urban transportation. As such, it reports on organizational patterns and administrative practices in a number of communities ranging in size from 75,000 to over 500,000.

The report contains chapters on the urban transportation problem, the planning function, the street operation function, engineering design and construction, the street maintenance function, the enforcement function, public transportation, and state - local relations. A final chapter contains conclusions. There are numerous tables and charts.

The report will be of considerable value to administrators and others charged with the responsibility of determining the most practical and efficient type of organizational pattern for a city, as well as being of great help as a check list in measuring the adequacy of the program now being carried on in a city to meet the transportation problem.

Relative Hazards At Railroad Grade Crossings On State and Federal-Aid Highway Systems, 1957

Technical Report 59-5, Oregon State Highway Commission, Salem, Oregon. June, 1959. 111 pp.

This report contains a priority list of railroad crossings in Oregon, based on relative hazard. The method of rating crossings is that developed in Technical Report 56-3 of the Oregon Department.

The report concludes that the earlier methodology is still good and that a formula based on vehicular volume, train volume, protection and darkness factors will predict accident experience with reasonable accuracy. Interesting other conclusions are that automatic gates may be expected to reduce accidents 90 per cent under experience at un-signalized crossings, that there is no significant difference between experience at one-way and two-way street intersections with railroad tracks, and that the "maximum" accident experience has decreased about 50 per cent since 1954 at the high volume crossings.

The Highway and The Landscape

Edited by W. Brewster Snow. Rutgers University Press, 30 College Ave., New Brunswick, N. J. December 1959. 223 pp. $5.00

This new volume includes chapters by a number of engineers and landscape architects, among them W. A. Bugge, F. W. Cron, Gilmore D. Clarke, Wallace A. Johnson, and Oliver A. Deakin.

The book is based on the principle that the "complete highway" must be fitted to its natural environment, that only thus will a highway possess a total and permanent community value. Chapter headings include: The Complete Highway, The Parkway Idea, Art of Fitting the Highway to the Landscape, Preserving the Scenic Qualities of the Roadside, Good Highway Design is Economical, New Highways and Property Values and Zoning for Roadside Protection.

Proceedings—NW Traffic Engineering Conference, 1959

Western Section, Institute of Traffic Engineers, 105 Public Safety Building, Seattle 4, Washington. 1959. 120 pp.

This volume combines the Proceedings of the NW Traffic Engineering Conference and the Annual Meeting of the Western Section, ITE, held in Seattle in July 1959.

An Inventory of Traffic Engineering Activities In California Cities—1959

Wolfgang S. Homburger and Bob Glenn, Institute of Transportation and Traffic Engineering, University of California, Berkeley, California. 1959. 6 pp. (mimeo).

This special report summarizes the responses of 107 California cities to questions dealing with the responsibility for traffic engineering functions, manpower assigned to such functions, and salaries paid to traffic engineers and aides. Cities are listed by population groups in the tables used to present the information received from those responding.

Writing and Publishing Your Technical Book

F. W. Dodge Corporation, 119 W. 40 St., New York 18, N. Y. 50 pp.

This booklet was prepared to help authors through the initial stages of developing book manuscripts. It deals with the preparation of manuscripts of business, industrial, engineering and professional books and gives valuable advice on how to arrange for their publication. The publishers are offering copies free of charge as a contribution to the growth of technical literature.

The San Francisco Bay Area— A Metropolis in Perspective

By Mel Scott. University of California Press, Berkeley, California. November 1959. 323 pp. $12.50.

The author has reviewed the growth of the Bay Area metropolitan region in an effort to put its present problems and plans into perspective. The book is an interesting account of the growth of the area, well illustrated, and will be of interest to many outside the immediate area.

HIGHWAY RESEARCH BOARD PUBLICATIONS

(Supplement to Publications of the Highway Research Board, November 1958)

Checks or money orders should be made payable to the "Highway Research Board" or to the "National Academy of Sciences." Postage stamps are acceptable on orders of $1.00 or less. We do not use C.O.D. mail. Address orders to:

HIGHWAY RESEARCH BOARD
National Academy of Sciences
2101 Constitution Ave., N. W.
Washington 25, D. C.

Highway Research Review No. 4B (December (1958) (Supplement to Nos. 4 and 4A), 220 p., $4.00.

This series is designed to provide a listing, classified by subject, of highway research projects in progress or reported by state highway departments, federal bureaus, colleges and universities, etc.

Bibliography

23. Mineral Aggregates: 1958 Revision (Annotated) (1958) Pub. 631, 111 p., $2.20.
24. Stabilization of Soil With Calcium Chloride (Annotated) Pub. 632, (1958) 96 p., $2.00.

Proceedings of the Highway Research Board

Volume 35 (1956) Pub. 426, 840 p., Clothbound, $10.00.
Volume 38 (1959) Pub. 674, $10.00.

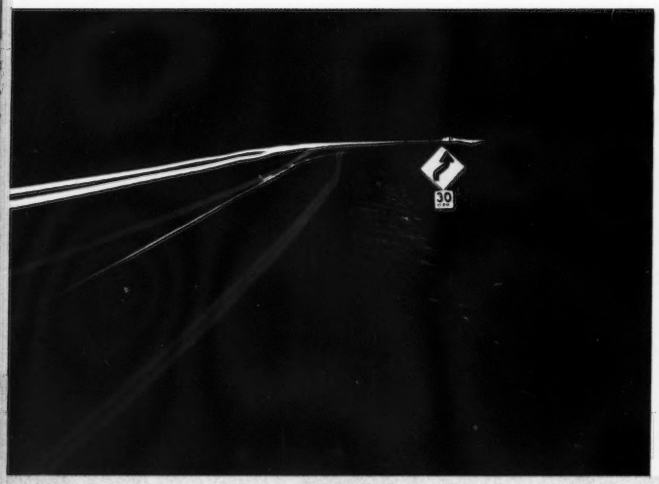
Special Report

36. A Study of the Comparative Behavior of Friction Piles (1958) Pub. 606, 72 p., $2.40.
37. Administrative Structure of Local Rural Road Organizations (1958) Pub. 615, 41 p., $1.20.
38. Gamma Ray Measurement of Pavement Density and Bridge Research Program (AASHO Road Test) (1958) Pub. 627, 43 p., $1.20.

(Continued on page 36)

Modern traffic control and safety start with reflective color that works around the clock

Improve traffic flow; make driving safer, e ier weather, on all roads and streets. Make re ctiv

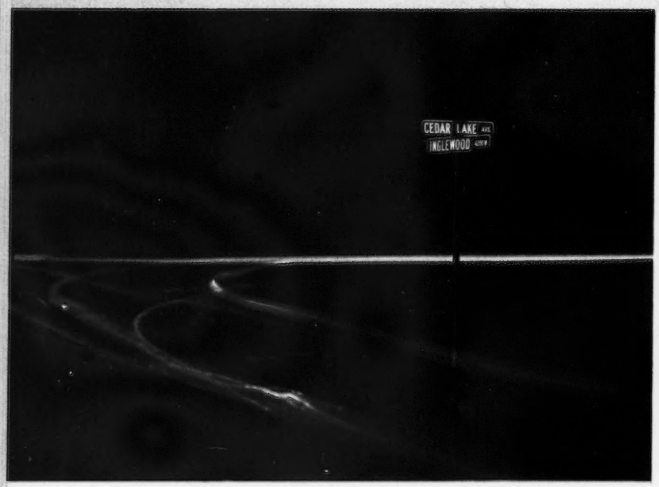


You get vital visibility with signs of "SCOTCHLITE" REFLECTIVE SHEETING

They warn, regulate and guide with the same distinctive shape, vivid color and clear legend, 24 hours a day. Such signs are instantly seen and understood because they employ a logical 4-color system.

You get all-weather performance with signs of "SCOTCHLITE" REFLECTIVE SHEETING

Even when completely wet they won't "black out." A clear plastic shield seals out moisture, protects reflective elements from distortion. The heaviest rain can't appreciably affect brightness.



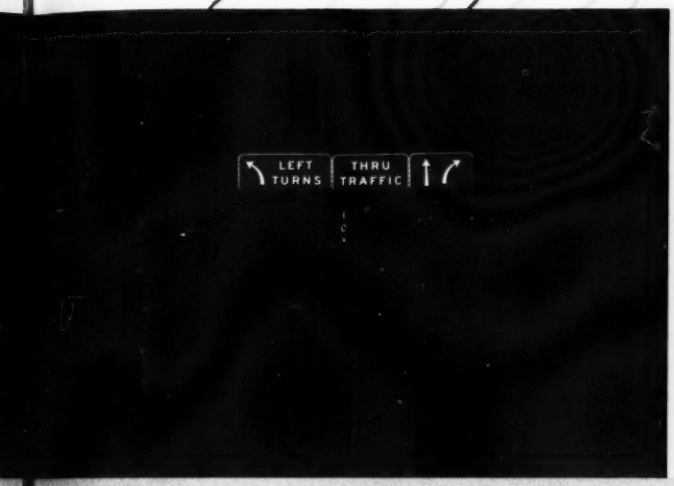
Street name signs of "SCOTCHLITE" REFLECTIVE SHEETING **leap to life at night**

Drivers see where they are at a glance, and in time to signal and turn. No more slowing of traffic, dangerous, sudden stops or quick turns. Street names will be brightly, conveniently visible 24 hours a day.

Road hazards painted with "CODIT" LIQUID **are white by day, bright by night**

Sprays or brushes on smooth or porous surfaces. Provides wide-angle reflectivity. Covers at less than 17¢ per sq. ft. Shows driver length and angle of curves; marks bridges, viaducts, and similar hazards.

...ier at all hours, in all ...ective color work for you.

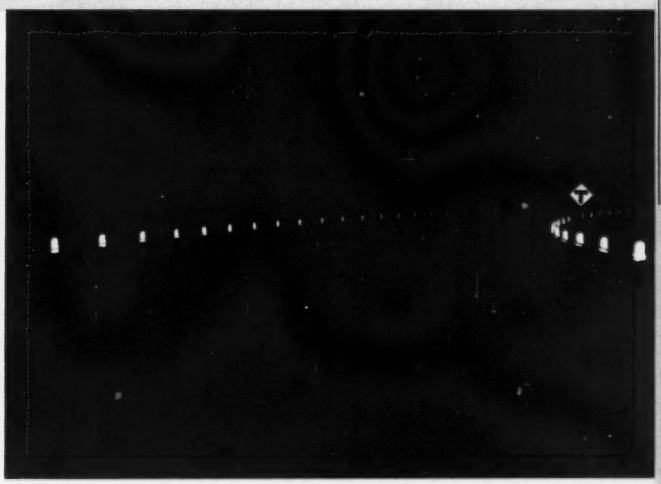


You get wide-angle reflection with signs of "SCOTCHLITE" REFLECTIVE SHEETING

Always brightly visible from practically all angles of approach . . . you can locate each sign for most effective traffic control. All signs will continue to communicate even when bent or twisted.

You get greater economy with signs of "SCOTCHLITE" REFLECTIVE SHEETING

They offer a long useful life and require minimum maintenance. Sign faces are completely smooth and flat so they resist effects of weather and dirt accumulation. Dust washes away in rain.



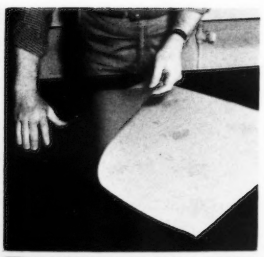
Completely reflectorized guide signs speed highway traffic at all hours

Bright "3M Signal" Letters provide complete, continuous legibility night and day. Against brilliant backgrounds of green "Scotchlite" Sheeting they offer the utmost in visibility and clarity.

Wide-angle delineators define and safely highlight the road ahead

There's a type for every delineation job—"wrap-around", "rigid" or "3M Signal" units that employ "Scotchlite" Sheeting, and "Codit" Reflective Liquid offer flexible, effective delineation at low cost.

You can make perfect, durable, reflectorized signs in your own shop in minutes at low, low cost

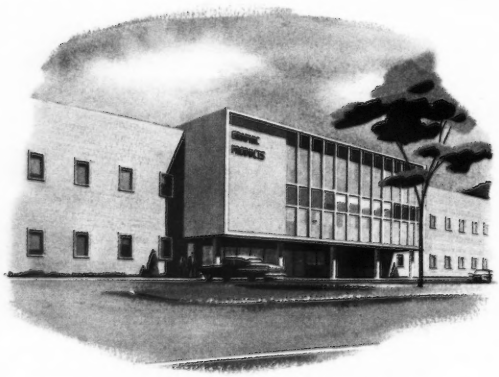


It's as simple as this. First, remove paper backing from ready-to-mount face of "Scotchlite" Reflective Sheeting. Anyone can do it easily.

Next, position prepared sign face on blank. You can use existing signs or new metal. Sign faces meet all BPR standards.

Your own automatic vacuum applicator is the key to fast, economical production (and they're available in a variety of sizes to meet all needs). When faces and blanks have been prepared as indicated in small photos, simply place in applicator and start. In minutes you'll have new reflectorized signs. The cost? As little as $3.60 each when you use your old sign blanks. And you can use your applicator to make street name signs, markers and other safety and guidance devices.

And the signs you make will last and last. Individual materials, finished faces, complete signs, all have been subjected to every type of laboratory and field test. The "weather tester" at right, for example, duplicates all of the conditions under which a traffic sign may have to function. Your signs will be brightly, colorfully visible at all hours, in all weather for years. Why not write today for complete information?



Constant testing, continuous research is carried on in the 3M Company's new Graphic Products Laboratory. From such research has come these products to make highways, roads and streets safer: "Scotchlite" Reflective Sheeting, "Codit" Reflective Liquid, "Centerlite" Reflective Compound and "3M Signal" Letters and Delineators.

MINNESOTA MINING AND MANUFACTURING COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW

St. Paul 6, Minnesota

3M COMPANY

The terms "Scotchlite", "Codit" and "Centerlite" are registered trademarks of Minnesota Mining and Manufacturing Company

Read about HI-VIZ in "Dear Crossings in Miami" in this issue.

HI-VIZ® Fluorescent SAFETY PAINT

. . . is the government tested high visibility (4 times brighter than international orange) color you see and remember on safety-marked military and civilian aircraft. Now formulated in easy-to-apply alkyd enamel and acrylic lacquer for brushing, spraying or roll-on . . . and in convenient aerosol containers. HI-VIZ Fluorescent Safety Paint is available in 8 durable, glowing safety colors that demand immediate attention at dawn, in heavy overcast and at dusk when normal driver visibility is at its lowest. Proved effective on traffic signs, pavement markings, lane dividers, barricades, department vehicles and other municipal uses . . . wherever better visibility can reduce accident occurrence.

Write today for FREE ¼ pt. HI-VIZ Safety Paint sample, municipal "product-in-use" case history, detailed 12-page HI-VIZ "idea" brochure illustrated in fluorescent color, Safety Kit information and technical data sheets.

Distributor inquiries invited

Over twenty years experience in the manufacture of quality fluorescent products

LAWTER CHEMICALS, INC.

Dept. T • 3550 Touhy Avenue • Chicago 45, Illinois • San Leandro, Calif. • CHICAGO • South Kearny, N.J.

PLANET OVERHEAD SIGN STRUCTURES

erected with minimum traffic interference

There's no need to close lanes or reroute traffic when a Planet overhead sign is erected. When erection crews put the light-weight, all-aluminum overhead structure in place there is a minimum of traffic interference. Note that cross-member design permits several inches of tolerance if footings are not exactly aligned. These fast erection features substantially lower erection costs.

All-aluminum sign structures engineered by Planet are rugged. They offer maintenance-free support for large overhead signs and lights that will withstand hurricane force winds. No painting is ever required and there are no rust problems.

In accordance with your specifications, Planet will build and erect, or build only, overhead sign structures in any size or quantity. Write or phone today.

PLANET CORPORATION

• Traffic & Safety Equipment
• Engineered Handling Systems
• Automation Equipment

1842 SUNSET AVENUE LANSING, MICHIGAN

NEW PUBLICATIONS

(Continued from page 30)

39. Legislative Purpose in Highway Law: An Analysis (1958) Pub. 628, 120 p., $4.00.
40. Water and Its Conduction in Soils: An International Symposium. Pub. 629, (1958) 338 p., $6.00.
41. Outdoor Advertising Along Highways: A Legal Analysis (1958) Pub. 630, 101 p., $4.00.
42. Highway System Classification: A Legal Analysis, Part I (1959) Pub. 638, 91 p., $3.20.
43. Selective Cutting of Roadside Vegetation for Improved Highway Safety, Appearance and Use. Pub. 672, (1959) 42 p., $1.20.
44. Foundation Exploration (1959) Pub. 673, 21 p., $0.80.
45. Welded Highway Bridges: An Analysis of Inspection Factors (1959) Pub. 675, 72 p., $1.60.
46. A Cooperative Study of Structural Design of Nonrigid Pavements: Review of Test Procedures and Presentation of Rigid Plate Bearing Test Data (1959) Pub. 676, 56 p., $1.20.
47. Report on Cooperative Freezing-and-Thawing Tests of Concrete (1959) Pub. 677, 67 p., $1.60.
48. Federal-Aid Provisions in State Highway Laws: An Analysis. Pub. 681, (1959) 72 p., $2.40.
49. Intergovernmental Relations in State Highway Legislation: An Analysis. (100 p., $3.20)

Bulletin

190. Urban Research in Highway Planning (1958) Pub. 611, 40 p., $0.80.
191. Night Visibility, 1958 (1958) Pub. 617, 64 p., $1.40.
192. Rheological and Adhesion Characteristics of Asphalt (1958) Pub. 618, 74 p., $1.60.
193. Lime and Lime-Flyash Soil Stabilization (1958) Pub. 619, 47 p., $1.00.
194. Highway Needs Studies, 1958 (1958), Pub. 620, 60 p., $1.20.
195. Relation Between Vehicle Characteristics and Highway Design: A Symposium (1958) Pub. 621, 48 p., $1.00.
196. Air Voids in Concrete and Characteristics of Aggregates (1958) Pub. 622, 45 p., $1.00.
197. Improving the Water Repellency of Hardened Concrete (1958) Pub. 623, 23 p., $0.50.
198. Cement-Soil Stabilization (1958) Pub. 624, 64 p., $1.40.
199. Photogrammetry—Developments and Applications: 1958 (1958) Pub. 625, 82 p., $2.00.
200. Studies in Highway Administration (1958) Pub. 626, 50 p., $1.00.
201. Rapid Tests for Aggregate and Concrete (1958) Pub. 633, 23 p., $0.50.
202. Performance of Granular Subbases Under Concrete Pavement (1958) Pub. 634, 81 p., $1.60.
203. Travel Characteristics in Urban Areas (1958) Pub. 635, 130 p., $2.60.
204. Asphalt-Soil Stabilization (1958) Pub. 636, 45 p., $1.00.
205. Highway Laws — 1958 (1958) Pub. 637, 34 p., $0.80.
206. Effects of Concrete Characteristics on the Pulse Velocity — A Symposium (1959) Pub. 639, 74 p., $1.60.
207. Load-Carrying Capacity of Roads as Affected by Frost Action: Final Report (1959) Pub. 640, 32 p., $0.80.
208. Traffic Accident Studies — 1958 (1959) Pub. 661, 83 p., $1.60.
209. Subsurface Drainage of Highways and Airports (1959) Pub. 662, 21 p. $0.50.
210. Flexible Pavement Design: Research and Development, 1958 (1959) Pub. 663, 61 p., $1.20.
211. Sealers for Joints and Cracks in Concrete Pavements (1959) Pub. 664, 22 p., $0.50.
212. Characteristics of Vehicle Operators (1959) Pub. 665, 37 p., $0.80.
213. Soil and Materials Surveys by Use of Aerial Photographs (1959) Pub. 666, 52 p., $1.20.
214. Continuous Steel Reinforcement for Experimental Concrete Pavements (1959) Pub. 667, 113 p., $2.40.
215. Bituminous Patching Mixtures and Seal Coats (1959) Pub. 668, 37 p., $0.80.
216. Landslide Occurrence and Analysis (1959) Pub. 669, 43 p., $0.80.
217. Concrete Pavement Design Research—1958 (1959) Pub. 670, 49 p., $1.00.
218. Frost Effects in Soils and on Pavement Surfaces (1959) Pub. 671, 48 p., $1.00.

Bulletin 219. Skid Prevention Research —1959 (73 p., $1.40).

Resumé of First International Skid Prevention Conference. Accidents and the Human Element in Skidding. Relationship of Vehicle Dynamics to Skidding. Relationship of Tire Design and Composition to Skidding. Relationship of Road Surface Properties to Skidding. Comparison of Several Methods of Measuring Road Surface Friction. Review of Laboratory and Field Methods of Measuring Road Surface Friction. A Laboratory Investigation of Pavement Slipperiness.

Bulletin 220. Ice Melting Properties of Chloride Salt Mixtures (24 p., $0.50).

A Laboratory Study of Ice Removal by Various Chloride Salt Mixtures. Ice-Melting Properties and Storage Characteristics of Chemical Mixtures for Winter Maintenance.

Bulletin 221. Planning and Development in Urban Transportation — 1959 (66 p., $1.20).

Measurement of Congestion in Transportation Systems. The Central Business District and Its Implications for Highway Planning. New Roads for Old Cities: European Experience, General Planning, Urban Renewal, and Highways. Measurement of Central Business District Change and Urban Highway Impact. The Shoppers' Paradise Concept.

Bulletin 222. Highway Investment and Financing (79 p., $1.60).

Fundamental Problems in Relating Vehicle Size to Highway Costs. Pricing and Financing Highway Services. Price Theory and Tax Equity in Highway Finance. Use of Economic Criteria for Highway Investment Planning. General Discussion.

Bulletin 223. Embedded Flexible Metal Pipe Culverts: Corrosion and Deformation (1959) Pub. 683, 24 p., $0.50.

Bulletin 224. Trip Characteristics and Traffic Assignment (135 p., $2.60).

Trends in Travel to the Central Business District by Residents of the Washington, D. C., Metropolitan Area, 1948 and 1955. Continuous sampling Method of Conducting Origin - Destination Surveys, Report on Analysis of Urban Work Trips. A Method of Traffic Assignment to an Urban Network. Land Use Projections for Predicting Future Traffic. Home-Interview Surveys and Related Research Activities. Program for Assigning Traffic to a Highway Network. Use of IBM Port-a-Punch in Origin-Destination Surveys. Novel Traffic Survey Method Utilizes Vehicle Lights. Application of O-D Data in the Baltimore Region. Estimating and Forecasting Travel for Baltimore by Use of a Mathematical Model. Median Strip Mass Transit and Related Traffic Characteristics on Congress Expressway. Land Use in Traffic Generation.

Bulletin 226. Night Visibility. 1959. (64 pp., $1.20)

Retinal Sensitivity and Night Visibility. Background and Objectives of the U.S. Standards for Colors of Signal Lights. Proposed Changes in Traffic Signal Color Standards. Surface-Mounted Lights on Roadways for Guidance. Ratings for Visual Benefits of Roadway Lighting. Vision at Levels of Night Roadway Illumination. Literature 1957-58. Factors of Educational Value for Obtaining Safe Night Driving Speeds.

Bulletin 227. Highways and Economic Development (88 pp., $1.60)

Changes in Land Use and Value Along Atlanta's Expressways. Massachusetts Route 128 Impact Study. Land Value Impacts of Expressways in Dallas, Houston and San Antonio, Texas. Approaches to Three Highway Impact Problems. Some Effects of Limited Access Highways on Adjacent Land Use. The Land Use Map Versus the Land Value Map: A Dichotomy?

Bulletin 230. Trip Generation and Urban Freeway Planning. (125 pp., $2.40)

Five papers on matters that influence urban freeway planning. Included are the following: Studies of Trip Generation in the Nation's Capital, 1956-58, by F. Houston Wynn. Traffic Characteristics of Massachusetts Route 128, by Martin Wohl, A. J. Bone, and Billy Rose. The Nature of Urban Freeway Systems, by Edgar M. Horwood, Ronald R. Boyce, and Donald F. Rieg, with discussion by Edward T. Telford. Factors Influencing Transit and Automobile Use in Urban Areas, by Warren T. Adams. A Method for Predicting Speeds Through Signalized Street Sections, by E. Wilson Campbell, Louis E. Keefer, and Ross W. Adams.

Roadside Development 1959. (56 p., $1.20).

Report of Committee on Roadside Development. Design of Urban Highway Landscaping. Design of Rural Highway Landscaping. Recent Developments in Soil Erosion Control Practices and Materials. Roadside Design to Reduce Traffic Noise. Maintenance of Interstate Highway Roadsides as Affected by Work Operations. Maintenance of Interstate Highway Roadsides as Affected by Highway Design. Aerial Seeding of Highway Slopes. Land Use Treatment Plan as Related to Maintenance. An Anti-Litter Campaign Reduces Maintenance. General Discussion.

Highway Research Review 4B (220 p., $4.00).

CORRECTION

In the November issue there was listed a brochure on traffic engineering as a vocation, under the title "American Occupations — Traffic Engineer." The author, Thomas J. Seburn, is not the source for the pamphlet, which the listing indicated was the case. The publisher is Research Publishing Company, Inc., P. O. Box 245, Boston, Massachusetts, and all requests should be directed there accompanied by a check for $1.00 for each copy desired.

New Animated Movie on Traffic Signs and Signals

"Signs Take a Holiday," a new National Safety Council traffic safety film, done in animation and telling the story of the importance of traffic signs, signals and markings in today's complex motorized society, had its premier at the National Safety Congress.

Produced with the help of the Railroad Highway Traffic Safety Committee of the Railroad Section, the 16mm movie is a natural for all industry off-job safety programs, and has appeal to both school ages and adult audiences. It runs 12 minutes and is expected to have wide television use. Five hundred copies of a companion leaflet, "Signs You Must Know," using 33 illustrations from the movie and designed as an audience handout piece, are given free with the purchase of each film.

Horace Heimerhoff, the usually happy protagonist, loses his temper when given a parking ticket and wishes that all signs and signals would be abolished. His angry wish is strangely granted, much to his surprise, and

with immediate and horrible results. Cars crash, and all kinds of animated chaos follows. Horace, shaken and bruised, finally recognizes that traffic signs are very useful things to have around.

The job of teaching Horace and the viewer to recognize the six basic traffic signs by their shapes alone is skillfully handled. The leaflet makes an excellent take home "recall piece" and may be used independently of film showings.

The materials were developed for the Signs of Life program. The Council is selling prints of the movie and leaflet below cost to encourage wide use by railroads, industry, official traffic agencies, and state and local safety councils.

Price of single print copies of the 16mm black and white sound film is $60 each; 2 to 9 copies, $55 each, and 10 or more, $48 each. Order by Stock No. 379.42.

The leaflet is sold in packages of 100. Prices are: 1 to 9 pkgs., $2.00; 10 to 49, $1.40; 50 to 99, $1.30; 100 to 199, $1.20, and 200 or more, $1.10. Order by Stock No. 399.81. All prices subject to 10 per cent discount to Council members.

ASSISTANT CITY ENGINEER

NORWALK, CALIFORNIA

(Pop. 83,010)

Salary $710-$862. Graduation from college of civil engineering, four years engineering experience, two of which have been in supervisory capacity, and at least one year in traffic engineering.

APPLY PERSONNEL OFFICE

CITY HALL

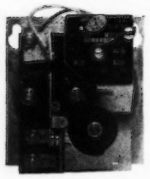
NORWALK, CALIFORNIA

For Flashing Signals and Beacons

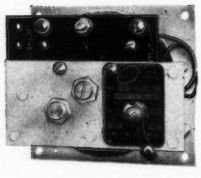
Specify The Flashers With Performance Proven Dependability

engineering and design features that have made Time-O-Matic the leading manufacturer of flashers since 1932

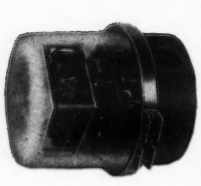
- open frame construction for efficient heat dissipation
- adjustable 50-60 flashes per minute
- not affected by extreme temperature variations
- slow speed induction motor
- hardened, polished pivots
- bearings, factory lubricated for life of the flasher
- available with or without radio interference eliminators



NEW ! !
Model 46
1 or 2 circuit, front-mounted cams and contacts out in the open for fast, easy adjustment, replacement. Compact size 4⅜" high, 4" wide, 2¼" deep



Model 3
1 or 2 circuits



Model 37 Jack-mounted
Available with or without meter base and cover, as shown, 1 or 2 circuits

Write for literature and specifications

Applications

Safety Zones
Caution Signals
Traffic Islands
Loading Zones
Warning Beacons
Flashing Stop Signs

TIME-O-MATIC, INC.

A SIGN OF GOOD CONTROL SINCE 1932

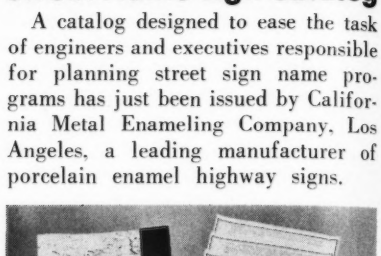
P.O. Box 850, Danville, Illinois, Phone Hickory 2-0611

Canadian Agent: Sangamo, Ltd. • Leaside, Toronto 17 Canada

Strictly Business

Cameo Issues Street Name Sign Catalog

A catalog designed to ease the task of engineers and executives responsible for planning street sign name programs has just been issued by California Metal Enameling Company, Los Angeles, a leading manufacturer of porcelain enamel highway signs.



Planned as a working kit, the catalog not only describes the standard signs in detail, but includes specification sheets on sign hardware and Cameo's new reflectorized process, Porcelite, which is available at buyers' option on its street name signs.

The specifications are specially printed on 8½" x 11" vellum paper, so that they may be duplicated on office copying machines.

Among the other features of Cameo street name signs (of porcelain enamel) described in the catalog are: 18-gauge steel sign plates for strength; all-aluminum sign hardware; exclusive theft-proof construction; full 6" vertical height on all nameplates for better visibility.

Copies of the catalog are available on request to California Metal Enameling Company, 6904 East Slauson Ave., Los Angeles 22, California.

Traffic Controllers for Isolated Intersections

The FT-300 Series of electronic traffic controllers provides efficient and economical traffic control at intersections where multi-purpose control systems are not required. Crouse-Hinds new Bulletin 2720 "Controllers Designed for Isolated Intersections" lists and describes the new series and briefly describes Crouse-Hinds traffic signals which may be used with them.

For a copy of Bulletin 2720, write Crouse-Hinds Company, Syracuse 1, New York.

Southern Signals, Inc. Changes Name

Traffic Signals, Inc. will be the new name of Southern Signals, Inc., manufacturer of a full line of traffic controls including signal controls, for isolated, interconnected, remote, vehicle or pedestrian actuated application; signal heads, fixed face and adjustable; beacons, and flasher controls. This change in name was effective January 1, 1960.

Announcement of the name change was made jointly by E. J. Schulenberg, President, and J. F. Williamson, Jr., Manager of Traffic Signals, Inc. The change in name has been brought about by the expanding business of the company which found the "Southern" to be a negative marketing factor because it gave the erroneous impression that distribution and service on the traffic signal equipment was limited to the Southern United States.

J. F. Williamson, Jr.

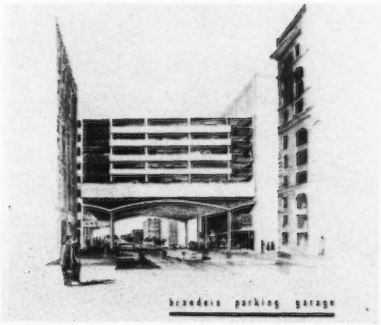
Southern Signals, Inc. was formed in 1947 as a reorganization of Southern Switch & Signal Co., manufacturer of traffic controls.

Under the management of Schulenburg and Williamson the company has placed particular importance on its research and development program directed towards bettering traffic signal performance; improving traffic signal legibility and attention-getting features, and making installation and maintenance easier.

The present efforts in advanced engineering for the traffic signal industry are being supplemented by seminars conducted by J. F. Williamson, Jr. in conjunction with state and municipal officials. For information on these seminars, literature or specific traffic control problems write to Traffic Signals, Inc., 222 Beach Street, P.O. Box 1303, Shreveport, Louisiana.

Over-Street Parking Garage

A "first" for Omaha, and perhaps for the entire United States, is an over-street parking garage being planned by J. L. Brandeis & Sons, the largest department store in Omaha. The garage over the street will connect Brandeis store with a proposed 431 car garage to be built on the southwest corner of 17th and Douglas Street.



The over-street portion of the garage will add 222 cars to the garage capacity. Brandeis already occupies the space under the street at this location.

The garage is being designed by Leo A. Daly Company, Omaha, Architects and Engineers. It will have a drive-in branch bank of the Omaha National Bank on the first level. There will be seven floors of parking on the off street structure and six floors over the street. It will be self parking.

Work started August 31, 1959 on tearing down the existing building. It is expected that the new building will be completed in the spring of 1961.

Helicopters for Traffic Control Work

Helicopters for traffic control, fire department use, and disaster relief are among the topics covered by a 12-page booklet recently released by Hiller Aircraft Corporation, Palo Alto, Calif., builders of the 305 hp 12 E helicopter, power leader in the light utility class. The booklet also reveals how eligible communities pay only half the purchase price for Hiller 12 E's under Federal Office of Civil and Defense Mobilization purchase plans.

Photographs of Hiller 12 E helicopters in community work, brief performance specifications and OCDM manual abstracts are also discussed.

Copies of "America's New Mounted Police" may be obtained by writing Commercial Division, Hiller Aircraft Corp., 1350 Willow Rd., Palo Alto, Calif.

Street Sign Bracket Cuts Plate Cost

A two-piece, cast-aluminum street sign bracket which cuts plate costs in half by eliminating back-to-back sign mounting has been announced by U. S. Standard Sign Co., 878 Ogden Ave., Toledo 9, Ohio.

The two pieces are slotted for .080-inch standard-thickness sign plates. These plates are locked firmly in the slots by aluminum set screws with Allen heads. The entire installation may be fixed to 2 or 2½-inch pipe standards in a few minutes. A center shaft and related accessories are not required.

If aluminum sign plates, such as those recommended for reflective signs, are used in this installation, the completely rustproof combination requires no maintenance, according to the manufacturer.

Special brackets are available for 45-degree installation of street signs at angled intersections. The lower section may be used alone for mounting double-faced signs of various types.

The company also furnishes anodized aluminum sign blanks for use with these brackets.

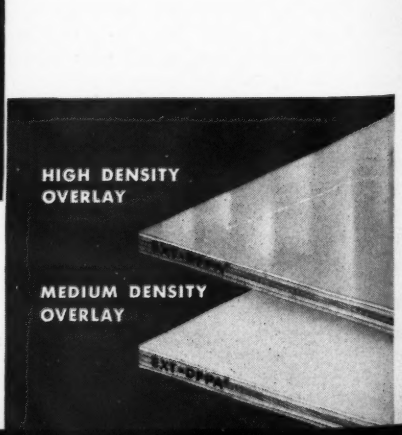
New Barrier Gate On Market

Robot Industries, Inc. has developed Robot Barrier Gate, Model BG available with a wide choice of controls. Desirable wherever automatic control of vehicular traffic is wanted, this gate is dependable and economical. Installation and maintenance costs are low and, according to the manufacturer, the quality materials used are field-proven to give many years of trouble-free performance.

Standard gate length is ten feet overall; special lengths may be specified. Further details are available on request from Robot Industries, Inc., 7041 Orchard, Dearborn, Mich.

Idaho cuts maintenance a
with quality signs o

On standard black-background informational signs, reflective letters are applied directly to black High Density overlaid plywood, eliminating painting.

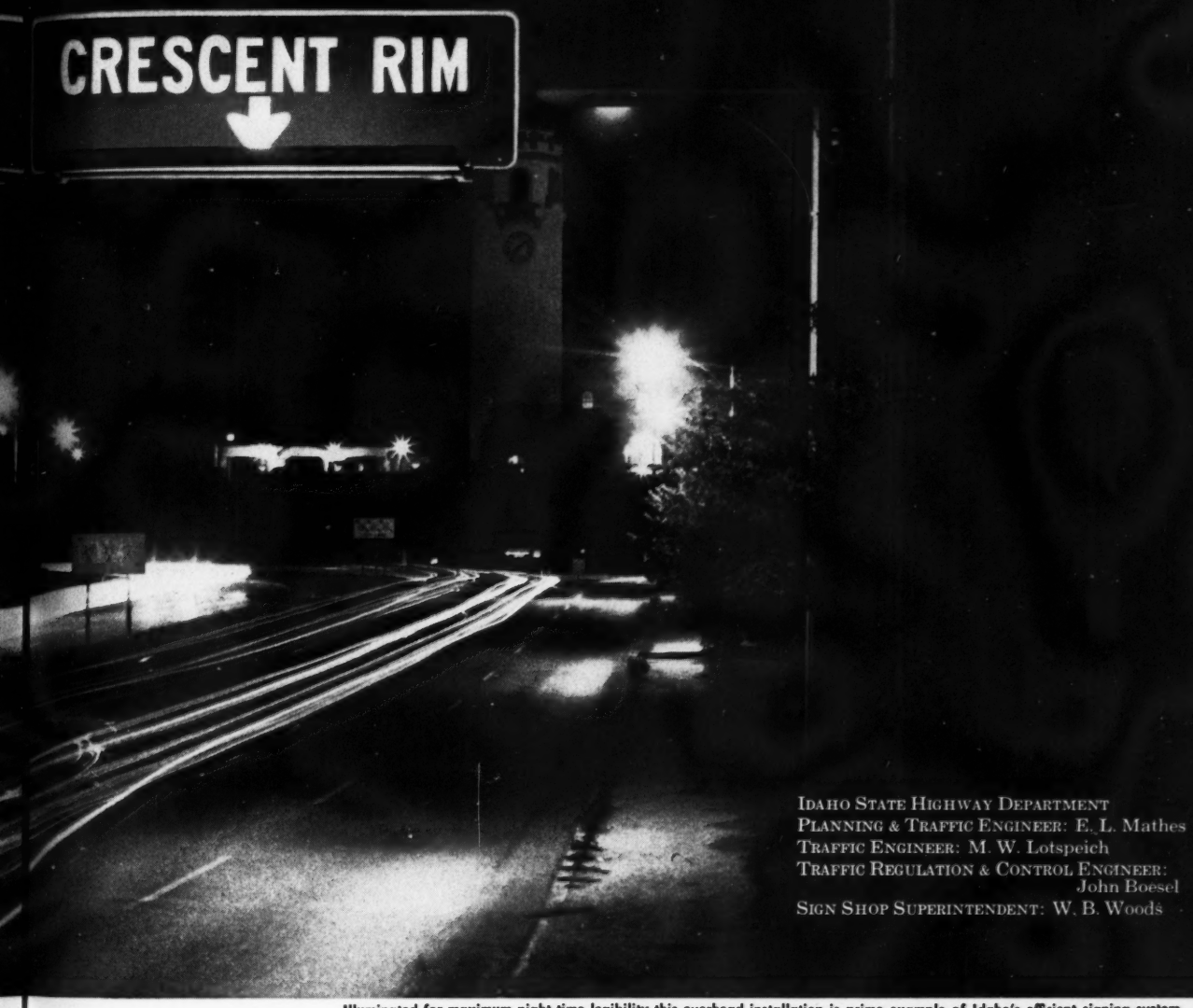


High Density overlaid plywood needs no protective painting; color (black, brown or amber) is in the overlay. Medium Density is for plain painted signs. Base panel is waterproof Exterior plywood.

Over
type
scenic
depar
savin

Until
laid
const
perat
Vand
result
troub

and replacement costs of overlaid fir plywood



IDAHO STATE HIGHWAY DEPARTMENT
PLANNING & TRAFFIC ENGINEER: E. L. Mathes
TRAFFIC ENGINEER: M. W. Lotspeich
TRAFFIC REGULATION & CONTROL ENGINEER: John Boesel
SIGN SHOP SUPERINTENDENT: W. B. Woods

Illuminated for maximum night-time legibility this overhead installation is prime example of Idaho's efficient signing system.

OVER 7,000 MODERN OVERLAID PLYWOOD SIGNS of every type and size help make motoring a pleasure on Idaho's scenic highways. They also help the state highway department do a better signing job at considerable savings to taxpayers.

Until 1953, when Idaho switched to High Density overlaid plywood, maintenance and repair had been a constant problem. Weathering is unusually severe; temperature ranges from 115° above to 40° below zero. Vandalism damage from hunters in isolated areas and resultant progressive deterioration were particularly troublesome. Under these rugged conditions, overlaid plywood has performed consistently well—particularly in areas where signs are subjected to unusual abuse. As a result, maintenance costs have dropped sharply.

Initial fabrication and installation costs are also less. Records at the Idaho sign shop in Boise show a completed overlaid plywood sign costs between 10 and 15 percent less than aluminum.

DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON
—a non-profit industry organization devoted to research, promotion and quality control

DFPA TESTED QUALITY

New Measuring Wheel For Irregular Terrain Now Available

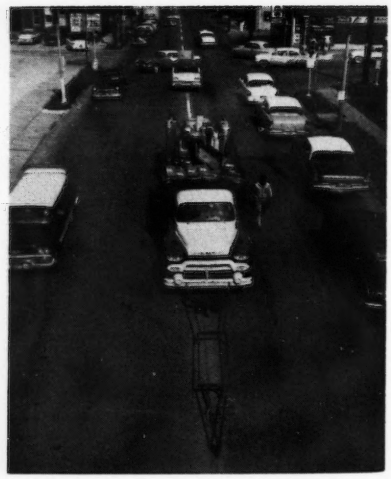
Accurate and dependable measurements from a measuring wheel that can be rolled over even the most irregular and uneven terrain are promised by a precision-calibrated instrument for all-round outdoor measuring jobs, now available.

Of particular interest to engineers and contractors, the new measuring wheel can be operated by one man, registering measurements to ½ inch on one side of the disc wheel and tenths of a foot on the other.

The sturdily constructed Rolatape Model #415 has a wide neoprene tire that provides positive traction under all conditions. Equipped with an automatic brake and a built in stand, the 415 handle folds compactly when not in use. Convenient zippered carrying case is available.

One man can roll it along to measure up to 100,000 feet (almost 19 miles). Curves and contours are measured just as easily as straight, flat surfaces, another example of the tremendous versatility of the 415. It can even be operated from a car window when driving at low speeds.

Rolatape, Inc., Santa Monica, California, is the manufacturer. The Model #415 supplements an extensive line of precision-calibrated measuring wheels including the Model #200 for indoor-outdoor use on smooth surfaces, Model #600 for heavier field work, Model 660 for agricultural use, the Model 100 measuring in the metric system and Model 600-G which measures in yards.



U.S. Route 30 in the southern part of the Chicago metropolitan area is striped by the Cataphote Corporation of Toledo, Ohio and Jackson, Mississippi as part of a contract for 85 miles of striping on Illinois highways.
Using one of the most interesting new "production lines" on the American scene, the thermoplastic material called "Catatherm" is laid at a speed of from 2 to 4 miles an hour. According to the manufacturer, the material lasts up to nine times as long as paint, gives maximum reflectance throughout its life, and dries quickly without smearing. Note the vehicle in the background which has just run over the new line.

Triangle Parking Corp. To Build Garage

Plans are nearing completion for a 562 car parking garage being built by the Triangle Parking Corporation for lease to the Edward C. Minas Company Department Store of Hammond, Indiana. Located in the central business district across the street from the store, this 200,000 sq. ft. facility will more than double present capacity.

The four level parking deck is of a modified continuous ramp design, permitting entrances and exits from the two adjoining streets. Pre-cast, prestressed tee-slabs will span 61'-4" between cast-in-place columns and beams. A lightweight concrete wearing surface will be poured after the pre-cast members are secured. The roof parking level surface slab will be post-tensioned to make the slab resistant to cracking and to prevent leakage. A pre-cast, exposed aggregate, concrete grille screens the interior while permitting full natural ventilation.

De Leuw, Cather and Company, Chicago, Illinois, are the engineers.

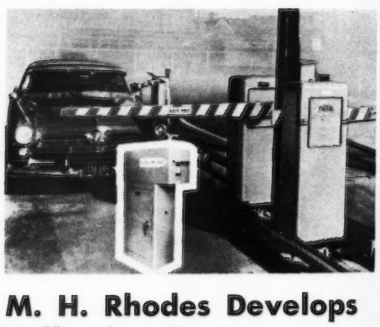
New Automatic Parking Control Ticket Dispenser

The Parcoa Division of Johnson Fare Box Company, 4619 N. Ravenswood Avenue, Chicago 40, Illinois has introduced a new automatic parking system that prevents error and lost revenue. It is especially designed for flexible operation and can be adapted for use in industrial plants, hospitals, universities, municipalities and commercial lots.

This self-service, time-dated ticket dispenser automatically issues a ticket to the driver and at the same time raises the gate. The exact time of entry, date and lot location are recorded on the ticket. When driver leaves the lot, the cashier at exit records expired time and collects parking fee. All chance of error is eliminated according to the manufacturer.

This type of automatic operation is not only a time saver, but efficiently provides for parking service without bother on the part of the driver.

The company also manufactures coin operated coded card key and ticket issuing automatic parking systems.



M. H. Rhodes Develops Collection System

M. H. Rhodes, Inc. manufacturers of the "Mark-Time" manual parking meters has developed a unique "2-second" Coin Collection System.

The system, adaptable for use on "Mark-Time" meters, is the fastest, safest and most efficient means of collecting coins on the market today, the manufacturer reports. It features a "2-second" speed collector, mounted on a large diameter vinyl plastic reinforced hose, which unlocks the meter's coin door, with a minimum of effort . . . coins fall into the vault, the door is automatically locked as the collector is withdrawn. Coins are not seen or touched from meter to vault.

The strong heavy gauge welded aluminum vault is padlocked to a tubular

(Continued on page 47)

Technical Notes

BRITISH PRACTICE REGARDING MEMBERSHIP IN ENGINEERING SOCIETIES

The current discussion of ITE membership qualifications suggests a comparison of practices in this country with those in England. The attached summary of British practices has been prepared by Wolfgang S. Homburger, Assistant Research Engineer, Institute of Transportation and Traffic Engineering, University of California. The author of these notes is indebted to the Institution of Highway Engineers, which furnished the information discussed herein through its Secretary, N.W. Jensen Esq., F.C.I.S.

The members of the Institute of Traffic Engineers are presently engaged in evaluating proposed changes in membership requirements. It may therefore be of interest to know the requirements laid down in a British engineering society, inasmuch as the ITE and many of the Founder Engineering Societies are descended from their British counterparts. The following are currently the qualifications required by the Institution of Highway Engineers (I.H.E.) of Great Britain:

Associate Members: These shall be at least 22 years old and shall have passed the Associate Membership Examination of the Institution, or hold one or more of:

1. An Honours or Pass Degree in Civil Engineering at a University or University College of the United Kingdom;

2. Associate Membership in the Institution of Civil Engineers, having passed the examination of that body...;

3. A Certificate in County and Highway Engineering of the Institution of Municipal Engineers (requiring passing of an examination);

4. Such other academic qualifications as the Council (governing body of the I.H.E.) deem sufficient.

In addition, Associate members shall hold an appointment involving responsible control either solely or partially of highway engineering works, or be engaged in designing such works or advising thereon, and satisfy the Council that they have had adequate experience. There is no maximum age limit nor minimum time that an engineer can remain in this grade.

Members: Members must be at least 30 years old, meet all the qualifications of Associate Membership, and have been, in the opinion of the Council engaged for a sufficient period in an important position of independent responsibility in connection with highway engineering. However, the Council may also elect to the grade of Member persons not so qualified, if they are at least 40 years old, have had at least 15 years employment in positions of responsibility for the design or execution of important highway engineering works, and have acquired such degree of eminence as a highway engineer as the Council deem sufficient.

Fellows: The grant of Fellowship is conferred by the Council at its "uncontrolled discretion" on Members of the Institution.

Honorary Members: The grant of Honorary Membership is conferred by the Council at its "uncontrolled discretion" on non-members of the I.H.E.

Student Members: These must be 17 years old, have matriculated at a University in the British Commonwealth or passed an examination of a similar standard and must either be attending a university course or be gaining experience in the science of highway engineering. Student membership is terminated at age 25.

There are also *Affiliates*, corresponding to the same grade of membership in ITE and a category of "*Service Members*" for military officers whose duties include or are allied to highway engineering.

It is interesting to note that the Council of the I.H.E. appears to have considerable discretion in the election of members and fellows. The grade of "fellow," in particular, is not awarded automatically to applicants meeting certain qualifications, but is awarded by the Council as a sign of honor, comparable to the conferring of the Honorary Membership on non-members of the Institution. Election to the grade of Associate Member is generally on the basis of one of the alternatives to passing the I.H.E. examination (which, in fact, is not being given at present). Most applicants already either have the required university degree or have passed the examination of the Institution of Civil Engineers (I.C.E.) or Institution of Municipal Engineers (I.Mun.E.).

It might be pointed out that proportionately less persons receive a university degree in the United Kingdom than do in the United States. A common alternative route to professional standing is by being apprenticed in an gineering firm for a number of years, at the end of which the examination of the I.C.E. or I.Mun.E. is taken. These examinations take on great importance in view of this and, as will be mentioned below, also fulfill the function equivalent to registration in the United States. Persons in an apprenticeship status can qualify as student members of I.H.E., also by an examination.

Great Britain has no system of engineering registration as is used in the United States. Instead, corporate membership (i.e. Fellow, Member, or Associate Member) in one of the engineering institutions bears much the same weight in the United Kingdom. In the highway engineering field, an increasing number of employers, both private and governmental, are requiring prospective employees to have been admitted to the I.H.E. Other types of engineering positions require membership in I.C.E. or I.Mun.E.

The result of this procedure, when compared to registration in the U.S., may be to ensure a more uniform minimum standard for professionally qualified engineers, since the I.H.E. qualifications are nationwide. Registration examinations in the U.S. vary from state to state, and there is no general reciprocity between the states.

The practice of traffic engineering has only in the last few years become a recognized specialty in the United Kingdom. There is now no separate professional organization for traffic engineers. The I.H.E. feels that traffic engineering should not become a separate profession, but a group of specialists within the major highway engineering field. For this reason, the I.H.E. has taken the initiative by establishing a Traffic Engineering Di-

ploma, obtainable by examination. It is hoped that in a few years, when most of the qualified traffic engineers in Great Britain will have had the opportunity to take this examination, employers will consider the possession of this diploma an essential requirement for applicants to traffic engineering positions.

The examination for the diploma, which will first be given in 1960, can be taken only by members of the I.H.E. or persons who are qualified for admission to such membership. The equivalent of the diploma, by U.S. practice, therefore would be that of registration in traffic engineering as a specialty for persons who are already registered in the more basic field of civil or municipal engineering, with experience in highway engineering work.

The I.H.E. has published the syllabus for the examination for the Diploma in Traffic Engineering, which indicates that holders of the diploma will indeed be highly qualified and knowledgeable in their field. The examination consists of four parts, each three hours long, and submission of a "set piece" is also required. The "set piece" is prepared in the months prior to the examination. It is either an investigation and report made by the candidate in the course of his duties, or the study of a subject set by the examiners. Suggested subjects indicate the scope of this "set piece": a comprehensive traffic, parking and accident survey of an urban area of not less than 10,000 population, including proposals for improvements; a traffic survey of the major streets of a town of at least 20,000 population; a report and plans for short and long term programs for highway improvements in an area of not less than 50,000 population; original research into or study of a technique or proposal leading to the improvement of traffic flow or safety; a mathematical analysis of traffic flow or distribution; etc.

The four written parts of the examination cover the following subjects: (1) Traffic studies (covering all studies commonly used plus questions on elementary statistics); (2) traffic design (covering geometric design on highways — including pedestrian and bicycle paths—and city streets, lighting, signal installation, parking facilities, etc.); (3) traffic planning (including route location, layout of subdivisions and shopping centers, estimating future traffic patterns, coordination with other forms of transportation, etc.); and (4) traffic law (including both vehicle law and laws pertaining to highway planning and traffic engineering).

In summary:

1. Candidates for Associate Member in the I.H.E. qualify generally either through passing a rather comprehensive examination or by possessing adequate educational achievements, such as a university degree; the type of position they hold is evaluated, but there is no minimum length of time for which the applicant must have been in the highway engineering field.

2. Election to the next higher grade of Member requires additional experience in highway engineering, but the exact amount is generally left to the discretion of the Council of the I.H.E.; there is also a provision for electing to the grade of Member persons who do not have the educational requirements for Associate Member if they have fifteen years of experience and have achieved some "degree of eminence."

3. Election to the grade of Fellow is honorary and is entirely at the discretion of the Council.

4. Persons studying highway engineering either at a university or through some other means (such as being apprenticed) can become Student Members.

5. Corporate membership in a British engineering society is looked upon by many engineering employers as a requirement to be held by applicants for many positions, just as engineering registration is valued in the U.S.

6. Competence in a special branch of highway engineering, such as traffic engineering, is evaluated by examination and recognized by the award of a diploma.

DESIGN AND COLOR OF PAVEMENT MARKINGS AT NO-PASSING ZONES

Highway Research Board Staff Activity

This article was taken from Circular 402, Highway Research Correlation Service, Highway Research Board of the National Academy of of Sciences — National Research Council, 2101 Constitution, Washington, D.C.

In response to a request by a state highway department concerning the design and color of centerlines and barrier lines at no-passing zones in other states, the Highway Research Board staff secured this information from all the state highway departments. It is presented here in tabular form for easy analysis.

It is interesting to note that 37 states use the triple-stripe method where no-passing zones in both directions overlap. Exceptions were noted in some states on narrow roads and bridges. Eleven states use the double-stripe method where no-passing zones in opposite directions overlap. All except three of the 37 states using the triple-stripe method use a yellow barrier line. With only one exception, states using the double-stripe method use a white barrier line. In all cases, the barrier line is solid.

The trend is definitely toward use of the 15-ft. stripe and 25-ft. skip for the centerline. Thirty-five states now use this design, and another is planning to do so in the near future. Only three states now use a solid white centerline on all roads, as one state which has been doing so reports it is changing over to a broken white line. Two states report the use of a solid black centerline on concrete roads only, and a broken white centerline on other roads. Only three states now use a broken yellow centerline, and one of these is planning a change-over to broken white. After this has been done, a total of 43 states will be using a broken white centerline. As noted previously, however, two of these 43 use a black solid centerline on concrete pavements. Three states use alternating white and black centerlines. One of these does not use the black segment on asphaltic concrete pavements.

There is considerable uniformity in the width of lines, with 41 states using a 4-in. width for both centerline and barrier line. Other widths used are 3 in., 3½ in., 4½ in. and 5 in.

Spacing between lines is generally 4 in. with the double stripe, the one exception being 3 in. Where the triple stripe is used, the spacing varies from 5 in. to 0 in., with many states reporting use of the narrower spacings on narrow roads.

DESIGN AND COLOR OF PAVEMENT MARKINGS AT NO-PASSING ZONES ON TWO-LANE ROADS IN RURAL AREAS — 1959

State	Method A-Triple Stripe B-Double Stripe	Centerline Stripe					Barrier Lines		Spacing Between Lines Inches
		Color	Solid or Broken	Length of Line Segments Feet	Length of Gaps Feet	Width of Line Inches	Color	Width of Line Inches	
Alabama	A	White	Broken	15	25	4	Yellow	4	2
Arizona	(1) A	White	Broken	15	25	4	White	4	2
Arkansas	A	White	Broken	15	25	4	Yellow	4	2
California	B	White	Broken	9	15	4	White	4	3
Colorado	A	White	Broken	15	25	5	Yellow	5	2
Connecticut	B	White	Broken	15	25	4	White	4	4
Delaware	(2) A	White	Broken	15	25	4 (3)	White	4	4
Florida	(4) A	White	Broken	15	25	4	Yellow	4	3
Georgia	A	White	Broken	15	25	4	Yellow	4	4
Idaho	A	White	Broken	20	30	4	White	4	2
Illinois	A	Alternating White & Black		W 15	B 25	5	Yellow	5	2
Indiana	A	(5) White	(5) Broken	15	25	4	Yellow	4	1
Iowa	A	White	Broken	15	25	4½	Yellow	3½	2
Kansas	A	White	Broken	17½	32½	5	Yellow	5	5
Kentucky	A	White	Broken	15	25	4	Yellow	4 (6)	4
Louisiana	A	White	Broken	15	25	4	Yellow	4	2
Maine	A	White	Broken	15	25	4	Yellow	4	2
Maryland	B	White	Broken	15	25	4	White	4	4
Massachusetts	B	White	Solid	—	—	4	White	4	4
Michigan	A	Alternating White & Black		W 20	B 30	4	Yellow	4	1
Minnesota	A	White	Broken	15	(7) 35	4½	Yellow	4½	2½
Mississippi	A	White	Broken	15	25	4	Yellow	4	0–4
Missouri	A	(8) White	(8) Broken	10	(9) 30	4	Yellow	4	4
Montana	A	White	Broken	33	66	4	Yellow	3	3
Nebraska	A	White	Broken	15	25	5	Yellow	5	4
Nevada	A	White	Broken	15	25	4	Yellow	4	4
New Hampshire	A	White	Broken	15	25	4	Yellow	4	4
New Jersey	B	White	(10) Broken	15	25	4	White	4	4
New Mexico	A	White	Broken	15	25	4	Yellow	4	2
New York	B	White	(10) Broken	15	25	4	White	4	4
North Carolina	A	White	Broken	15	25	4	Yellow	4	2
North Dakota	A	(11) Yellow	Broken	15	25	4	Yellow	4	2
Ohio	A	White	Broken	15	25	4	Yellow	4	3
Oklahoma	A	White	Broken	15	30	4	Yellow	4	2
Oregon	A	(12) Yellow	Broken	15	25	4	Yellow	4	4
Pennsylvania	(13) B	White	Broken	15	25	4	White	4	4
Rhode Island	B	White	Solid	—	—	4	White	4	4
South Carolina	(14) A	White	Broken	25	(15) 40	4	Yellow	4	4
South Dakota	A	White	Broken	15	25	4	Yellow	4	2
Tennessee	A	White	(16) Broken	15	25	4	Yellow	4	2
Texas	A	White	Broken	15	25	4	Yellow	4	2–4
Utah	A	White	Broken	15	25	4	Yellow	4	4
Vermont	A	White	Broken	15	25	4	Yellow	4	3
Virginia	B	White	Broken	15	25	4	White	4	4
Washington	A	White	Solid	—	—	4	Yellow	4	4
West Virginia	B	White	Broken	15	25	4	White	4	4
Wisconsin	B	(17) Alternating White & Black		W 15	B 35	4	Yellow	4	4
Wyoming	A	(11) Yellow	Broken	15	25	4	Yellow	4	3–4

(1) Double on pavement 18′ or less in width.
(2) On narrow roads of minor importance, single solid line is used to mark no-passing zones.
(3) Yellow barrier lines will be used on local highways which intersect interstate highways.
(4) On narrow bridges, single solid yellow line is used. On 18′ pavement, single or double stripe is used.
(5) On concrete pavements, a 6″ wide centerline stripe of black concrete is constructed by working magnetic iron oxide into the fresh concrete surface.
(6) Sometimes less on narrow roads.
(7) On concrete pavements, gaps between white line segments are painted black.
(8) On concrete pavement, centerline stripe is solid black.
(9) Now using a great deal of black and white together (10′ white 4″ with 30′ black 6″) centerline on blacktop surfaces. This combination of black and white is being proposed for use on the interstate in preference to white only.
(10) Broken centerline offset 2″ from centerline of pavement.
(11) White centerline used on interstate system.
(12) White on interstate highways. Beginning in 1960, centerline stripe will be white on all roads.
(13) Now changing over to the double-stripe method from a single solid line where no-passing zones in opposite directions overlap.
(14) Double stripe used across bridges having roadway widths of 18′-20′.
(15) 15′ line segments and 25′ gaps will be used immediately on the interstate system and on new and resurfaced pavements, resulting in a gradual change-over.
(16) In process of change-over from solid to broken centerline.
(17) On all except new asphaltic concrete pavements, gaps between white segments are painted black.

EFFECT OF COLOR AND LOCATION OF OBSERVATION CAR WHEN CONDUCTING SPEED CHECKS

Reported by J. E. Wilson and D. C. Chenu
Traffic Department, California Division of Highways

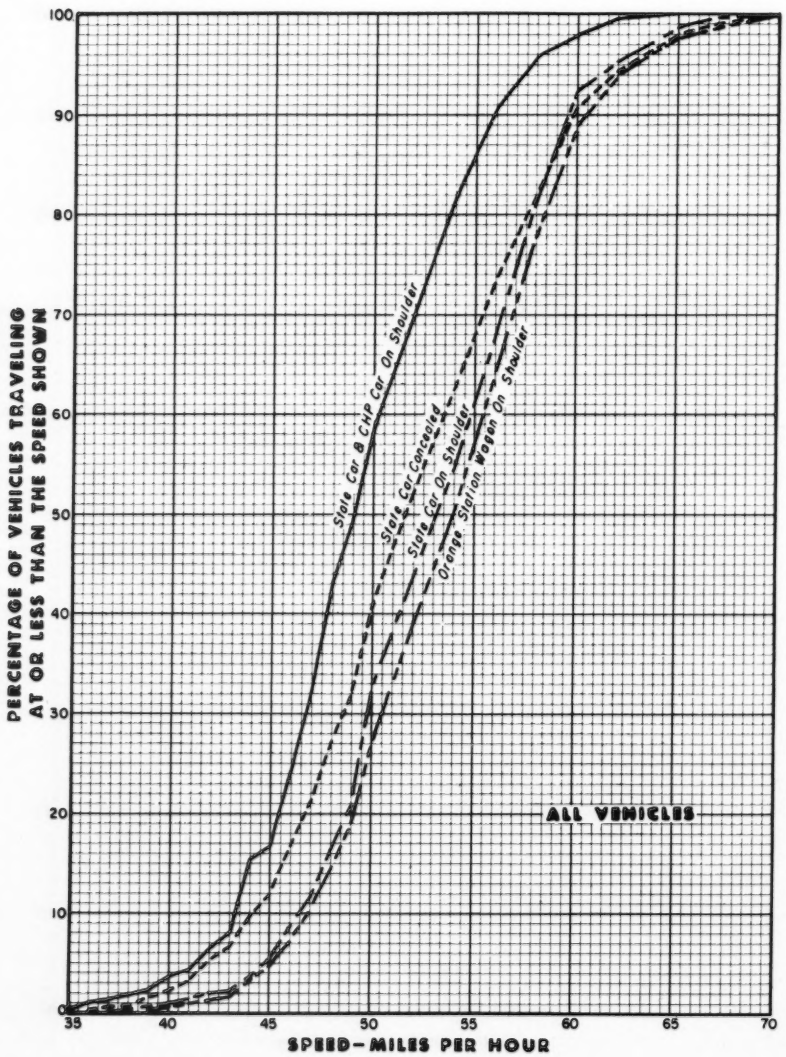
Four speed checks were made on consecutive days (Monday-Thursday) at a location on SJ-4-C between Lodi and Stockton (0.17 mile south of Morse Road). In all cases, the direction observed was southbound, the number of vehicles observed was about the same (400-402), and the number and type of trucks were the same. The directional traffic volume is not known but is believed to be about the same on each day as the observations were taken at the same time of day. The conditions for the four speed checks were:

1. State car of normal color parked on the shoulder 9 feet from the E.P.
2. Orange State station wagon parked on the shoulder 9 feet from the E.P.
3. State car concealed from view of traffic.
4. State and CHP cars parked on the shoulder. CHP car at 45° to the highway and on approach side of State car.

Attached is a graph showing the cumulative per cent of vehicles vs. speed for each of the four conditions.

The average speeds are as follows:

Orange station wagon on shoulder	54.6 mph
State car on shoulder	53.9 mph
State car concealed	53.3 mph
State and CHP cars on shoulder	50.0 mph



The data were subjected to the Difference Between Two Means and the Chi Square statistical tests. Assuming that the difference observed could occur five per cent of the time by chance, then by both tests the difference between the State car and the orange station wagon data was due to chance, the difference between the State car and the State car concealed was on the borderline of being due to chance, while the difference between the State car and the State car with the CHP vehicle present was not due to chance.

It can therefore be concluded that the color of the State vehicle had no significant effect on the speed of highway traffic and that the presence of a CHP vehicle significantly reduces the speed of highway traffic.

Contrary to what would be expected, the data show when the State car is moved from the shoulder to a concealed location, the highway speeds are decreased. One possible explanation of this is that rather than being concealed, the vehicle or the observers may have been in sight, resulting in an unusual situation to the motorist and therefore a lowering of speeds.

TRAFFIC NEWS

(Continued from page 27)

safety programs on international, national, regional, state, and local levels. Members are appointed by their respective governors.

The Association sponsors "Slow Down and Live," an annual vacation-period safety program, and state traffic safety management courses. It also participates in the National Vehicle Safety Check Program and "Operation Winter," a research and public information program aimed at promoting winter driving safety.

Executive offices of the Association, formerly at 60 John St., New York City, are now located at Room 816, 1710 H St., N.W., Washington 6, D.C. Emerson H. Westwick is executive secretary.

* * *

SUSTAINING ORGANIZATIONS
(Change of Representative)

Pfaff and Kendall
84 Foundry Street Newark 5, N. J.
George C. Masefield, Representative

(Continued from page 42)

aluminum frame with large rubber tires (aircraft type). The vault is easily removed from the cart by authorized personnel.

Detailed information available on request from M. H. Rhodes, Inc., Hartford 6, Conn.

New Vaportight Floodlight

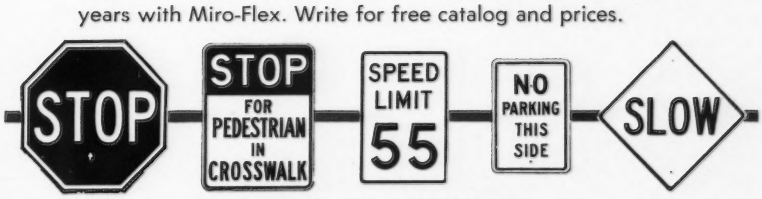
The new heavy-duty Bell Holder recently announced by Stonco Electric Products Company, Kenilworth, N. J., is vaportight clear through for use in all locations exposed to moisture, rain, sleet, ice, corrosive fumes, non-explosive vapors and gases or non-combustible dusts. Fully protected and sealed vaportight with a heavy tempered-glass front lens and high-temperature live silicone-rubber gasket, the new all-weather Bell Holder is especially effective for the wide-range of failure-prone installations in tunnels, bridges, loading docks, railroad and shipyards, service stations, parking lots, roadside stands and other locations where unusually severe conditions are damaging to ordinary floodlights. Features include an advanced "shield" design that eliminates back and side halo-light, pre-aiming quadrant that permits on-the-ground focusing, and a variety of job-tailored accessory fittings for pole-top, mid-pole, wall or cross-arm mounting.

The complete precision cast aluminum line includes Bell Holders for medium and mogul base reflector lamps up to 500-watts as well as lightweight portables for plant, airport, or municipal fire departments, contractor crews, public utilities and industrial emergency squads. Bulletin B-901 is available from the manufacturer.

SIGNS tell a Lot
ABOUT A COMMUNITY

EMBOSSED MIRO-FLEX TRAFFIC CONTROL SIGNS ARE SIGNS OF PRIDE!

It's a sign of wise buying when a community standardizes on Miro-Flex street name assemblies and traffic control signs. These long-life, embossed signs are uniform, more legible and last years longer than plain, flat-surfaced signs. Miro-Flex can provide signs for any purpose — with either standard or special messages. Find out today why you save for years and years with Miro-Flex. Write for free catalog and prices.



THE MIRO-FLEX CO. INC.

1824 EAST SECOND • WICHITA 14, KANSAS

Standard Traffic Signs Available for Immediate Delivery at Northeastern Warehouse

Koontz Equipment Corporation, 325 Ohio River Blvd., Emsworth, Pittsburgh 2, Pa.

Institute Affairs

INSTITUTE of TRAFFIC ENGINEERS COMMITTEES — 1959 - 60

Administrative Division

Nominating Committee
Thomas J. Seburn, Chairman
William L. Marvin, District 3
Karl A. Bevins, District 5
A. L. Hutchison, District 6
D. Grant Mickle, Member-at-Large

Resolutions Committee
O. K. Normann, Chairman
Michael J. Gittens
C. C. Robinson
W. S. Smith
K. S. Vaughan-Birch
Wayne N. Volk

Past President's Award Committee
Matthew C. Sielski, Chairman
J. C. McMonagle
F. Bruce Crandall
Burton W. Marsh
Donald M. McNeil

Membership Committee
L. E. Bender, Chairman
George J. Fisher
Eugene Maier
Ellis L. Mathes
John H. Mitton

Policy Committee
Matthew C. Sielski, Chairman
and all Past Presidents.

Annual Inventory Committee
John E. Baerwald, Chairman
J. E. Angell
M. J. Bouman
J. H. Bunch
M. J. Gittens
A. W. Gove
C. E. Haley
F. G. Jordon, Jr.
J. D. Lee
Eugene Maier
W. R. Marston
R. A. Burch
W. L. Kessler
J. V. Musick
Eugene L. Simm
B. B. Twombly
D. J. Hanson
T. T. Wiley
H. Porter, Jr., Consultant
F. Potenza, Secretary

Annual Meeting Committee (1960)
Evan E. Olmstead, Chairman

Annual Meeting Committee (1961)
Burton W. Marsh, Chairman

Special Committees

Workshop Committee
M. C. Sielski, Chairman
A. L. Forde
E. H. Flynn
J. E. Havenner
Norman Kennedy
W. H. Mann
W. R. McGrath
C. C. Robinson
S. T. Siegel
W. N. Volk

Radio Committee
E. F. Cleary, Chairman
R. W. Cottam
R. F. Michel
B. B. Twombly
W. N. Volk

International Traffic Study Meeting Committee
B. W. Marsh, Chairman
D. M. Baldwin
F. W. Hurd
D. G. Mickle
C. W. Prisk
R. O. Swain

NOW!

a NEW solid-color PVC

POLY-CONE*

tough, durable, no seams, will not CRACK, TEAR or BREAK!

This new SAFE-T-CONE never needs repainting. Just wash it with soap or solvents. Made of polyvinyl-chloride to produce the toughest, *most durable cone on the market.* Outlasts ordinary cone many times .... without upkeep!

*Polyvinyl-chloride

2191

SAFE-T-CONE® TRAFFIC GUIDES

All-Rubber SAFE-T-CONES available in 3 SIZES!

Painted or Reflectorized ALL RUBBER

Regular all-rubber SAFE-T-CONES, now better than ever. Painted standard red and yellow or reflectorized.

Plastic or All-Rubber FLUORESCENT

New Poly-Cones and All-Rubber cones available in brilliant orange-red fluorescent for extra brilliance, day or night.

SAFE-T-CONES made only by Radiator Specialty Co.
Charlotte, N. C.

MEMBERSHIP APPLICATIONS

The Institute of Traffic Engineers welcomes applications from qualified traffic engineers, but does not desire as members persons who are unqualified. Listed below are the names of those from whom applications for membership or transfer in grade have been received since the last published list. Institute members are urged to review this as soon as possible and immediately inform the Executive Secretary's office if names of people are found who are known to be unqualified for ITE membership or transfer.

NEW APPLICATIONS

BURNFIELD, Roye George
Senior Location Project Engineer, Ontario Department of Highways, Parliament Buildings, Toronto, Ontario, Canada. October 13, 1959, for ASSOCIATE.

HAENEL, Herman E.
Traffic Designer, Texas Highway Department, Brazos & 11th Streets, Austin, Texas. November 8, 1959, for JUNIOR.

SUPERSAD, Jankie N.
Acting Divisional Engineer & Senior Road & Bridges Engineer (South); (Substantive Post) Executive Engineer; Department of Works, 1, Edward Street, Port of Spain, Trinidad B.W.I. October 28, 1959, for JUNIOR.

SUTHERLAND, Ralph D.
C. E. III (District 4 Traffic Field Engineer) Illinois Division of Highways, (Peoria District), 6035 North Mount Hawley Road, Peoria, Illinois. October 29, 1959, for ASSOCIATE.

SWAGER, Robert J.
Assistant Project Engineer, Indiana State Highway Department, Box 150, Fort Wayne, Indiana. October 19, 1959, for ASSOCIATE.

WILMOT, Charles R.
Planning & Research Engineer, Municipal Roads Branch, Ontario Department of Highways, East Block, Parliament Buildings, Toronto, Ontario, Canada. November 5, 1959, for ASSOCIATE.

APPLICATION FOR TRANSFER

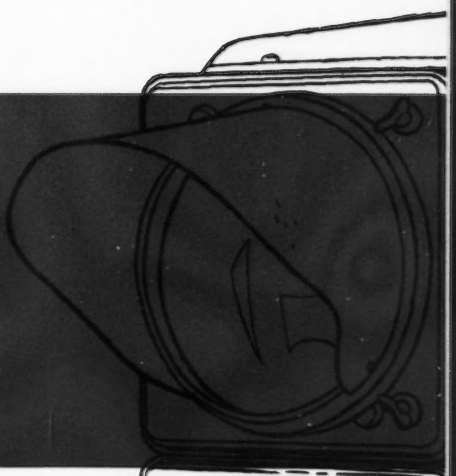
MICHAEL, Harold Louis
Assistant Director, Joint Highway Research Project & Associate Professor of Highway Engineering, Purdue University, Lafayette, Indiana. November 2, 1959, for MEMBER.

Announcing...

TO THE TRAFFIC CONTROL INDUSTRY . . .
A NEW CORPORATE NAME

Traffic Signals, inc.*

FORMERLY SOUTHERN Signals INC.

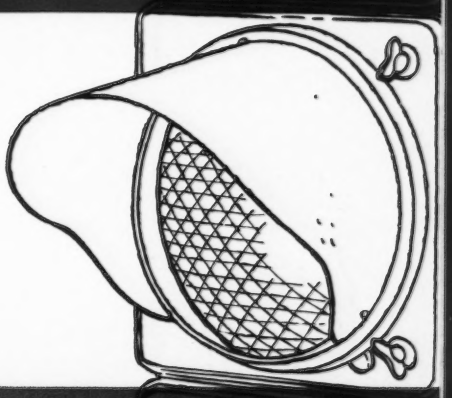


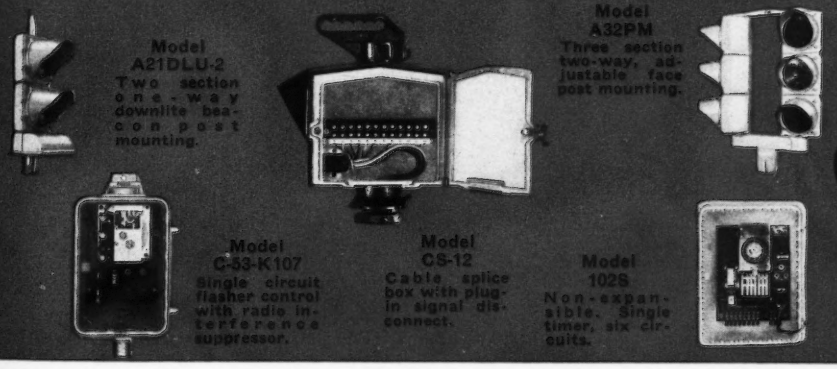
This represents a corporate name change only as management and ownership of the company remain unchanged.

Traffic Signals, Inc. will continue the engineering research and development program which has resulted in such favorably accepted innovations as the surface-mounted magnetic detector for vehicle actuated controls; pulsating red; new type directional arrow, Alzak reflectors and tri-stud mountings.

We will look forward to the continuation of serving you with a complete line of traffic signals and traffic signal controls.

* Effective January 1, 1960



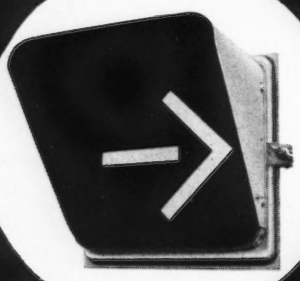

Model A21DLU-2
Two section one-way downlite beacon post mounting.
Model C-53-K107
Single circuit flasher control with radio interference suppressor.
Model CS-12
Cable splice box with plug-in signal disconnect.
Model 102S
Non-expansible. Single timer, six circuits.
Model A32PM
Three section two-way, adjustable face post mounting.

Traffic Signals, inc.

ADVANCED ENGINEERING IN TRAFFIC SIGNALS AND TRAFFIC SIGNAL CONTROLS

P. O. BOX 1303 • 222 BEACH STREET • SHREVEPORT, LOUISIANA

MARBELITE Presslite Push Button indicates pedestrian actuation of signals with an acknowledging "THANK YOU", or "WAIT PLEASE". Instructions include " Wait For Walk Light", or " Wait For Green Light".



Follow the sign of progress with MARBELITE LENS EXPANDER, and in 1960 take advantage of the many new products developed by MARBELITE including

FULLY ACTUATED
ELECTRONIC CONTROLLERS
MULTI DIAL CONTROLLERS
MARFLEX VISOR
LENS EXPANDER
PRESSLITE

FOR COMPLETE INFORMATION WRITE TODAY:

THE
MARBELITE
CO., INC.
173-179 NORTH 10th STREET
BROOKLYN 11, N. Y.
EVergreen 8-4742

Section News

SOUTHERN SECTION

At a meeting held on September 22 the formation of a Florida Section was discussed. A group from Florida had petitioned National for the formation of such a section. After considerable discussion a resolution was passed requesting Florida members to form a sub-section rather than a separate Florida Section.

The Virginia Division met on Oct. 28. This was the second meeting as a part of the Annual State Highway Conference.

News Items

On June 12, a little over three miles of limited access highway was added to the Lynchburg Expressway. The new road gives a total of 4.4 miles of distribution road which carries U. S. 29 traffic through the city with only one traffic signal to impede its flow. A few checks have been made in order to compare the movement of traffic on the distribution road with that on conventional city streets. From the central business district to a selected point at the southern boundary of the city the distance over conventional streets is 3.8 miles while it is 5.2 miles via the distribution road. In spite of the longer distance our checks indicate that a motorist can save up to 40 per cent in travel time by using the limited access highway instead of conventional streets. In another check it was found that by using the limited access highway instead of conventional city streets a motorist could save 24 per cent of his fuel dollar or, putting it another way, $2.40 could be saved out of a $10.00 gas bill. In making the gasoline consumption check a fuel analyzer was used which measures the mileage obtained from 0.1 gallon of fuel.

Marble Hensley, Traffic Engineer, Chattanooga, Tennessee was appointed a member of the Technical Council and is to head up Department 7.

The City of Charlotte has a new City Manager, William J. Veeder, formerly of Fort Lauderdale, Florida. He was appointed to replace former City Manager, H. A. Yancey, who has retired.

W. R. Deaton of Cornelius, N. C., graduate of N. C. State College has been employed as an Assistant for the Traffic Engineering Department, City of Charlotte.

Bill Huntzicker writes that Memphis has installed, on an experimental basis, a Scramble System in their central business district. Some forty-one intersections have been changed to this Scramble and it shall be interesting to see the pros and cons that will develop in Memphis regarding this operation.

St. Petersburg has secured legislation enabling it to set up an expressway authority with all powers to operate such a facility. The Supreme Court has reaffirmed the City Atlantic Coast Line Contract for relocation of passenger stations outside of the central business district.

MID ATLANTIC SECTION

The fall meeting of the Mid-Atlantic Section of the Institute of Traffic Engineers was held on October 22, 1959, at the new sign and signal shop of the City of Philadelphia located at 'G' Street and Ramona Avenue. This new facility marked a giant step forward in the City's program for better facilities in the operational phase of the Bureau of Traffic Engineering, since the sign, signal and parking meter divisions had previously been operating in obsolete buildings that had been constructed prior to the turn of the century.

The second Technical Meeting of the Harrisburg region was held on Tuesday, November 24th. Twenty-four members attended.

Ed Ricker, the Chief of the Traffic Engineering Bureau of the Department of Highways, spoke on "Interstate Highway Signs." He described the unique methods which the Design Section of the Bureau has developed for making location drawings and shop drawings for the signs, and discussed the standards which are used in the design of the sign faces. Mr. Ricker said that the Department is launching a program which is designed to increase the size of State erected signs until they compare favorably with the larger signs.

The question period following the talk posed problems which should be of concern to all traffic engineers.

Should a U. S. route and an Interstate route which begin and end at the same location both be marked?

Should more than one route be carried on any section of highway?

Should the word "By-Pass" be dropped and the major route signs placed on what is now considered the by-pass, with the present route through the town signed as a business route?

Should trail blazers be used to inform people as to the location of the various expressways?

No decisions were reached in these matters but a stimulating discussion resulted.

ITEms About the Members

For proof that at least some branches of Traffic Engineering do receive official recognition, the Newsletter presents the latest report from our Vice-President and Presidential nominee—from the Hawaiian Village Hotel in Honolulu, no less:

"After 8 days in Alaska this is like Heaven. Got in last night—will leave next Friday, 12/4, on the 16-hour hop to Tokyo, with a 3-hour layover at Midway. Getting red carpet service from the USAF. We're classified as GS-15, equal to a Brigadier General—and are we ranking it!

Regards,

Armand"

H. Bruce Murray, Associate Traffic Engineer of the City of Philadelphia, having attended the 4th International Traffic Engineering Study Week in Copenhagen, is now working hard on the possibility of a group trip to Europe next year to attend the 5th Study Week, to be held in Nice, France, in the latter part of September. Bruce advises that if a minimum of 70 persons would be interested in making the trip, a plane could be chartered and the conducted trip, covering a period of several weeks and including trips into Italy, Switzerland, Paris, and London, would cost only about $600 per person. Interested traffic engineers are requested to contact Bruce at 904 City Hall Annex, Philadelphia 7, Pa. for further information.

METROPOLITAN SECTION

A meeting was held at the Essex House in Newark, New Jersey, on Nov. 19. Thirty-four members and guests were present.

President Bender suggested that the professors of traffic engineering courses in the local area be contacted and that they and

their classes be invited to the meetings. It would be the duty of the Section membership to provide the Membership Committee Chairman Warren S. Quimby with the names of the professors.

George R. Roy began a membership discussion on the need to create a separate grade in the Institute for a Professional Engineer. One proposal suggested that instead of a grade of "Fellow" a P.E. license might be substituted for 3 years of active practice in order to qualify for the grade of "Member." The members strongly favored the requirement of a P.E. license to attain the grade of "Fellow," but opposed permitting a Member with a license being raised automatically to the grade of "Fellow" upon application. Those present were in favor of having a "Member" with outstanding accomplishments in the traffic field, and with a P.E. license, attain the grade of "Fellow" only through appointment by the Board of Direction.

NEWS ITEMS

Thruway Appoints Committee

A marked upswing in the number of accidents on the Thruway has led to the establishment of an Authority Committee on Safety Education and Research.

The task of the Committee of which Arnold Fisch is a member is to track down the causes of accidents and to develop effective ways to eliminate them. Fifty fatalities so far this year lend a sense of urgency to the program.

According to Northwestern National Life Insurance Company, freshmen engineering enrollments since the 1957-'58 recession have dropped.

Last fall, freshman engineering registrations decreased 11 per cent from the previous year. This is a sharp reversal of a 7 year uptrend. It is blamed on the unwarranted pessimistic appraisal by school counselors, parents, and students of the profession during the slump.

Tom Hicks, a member of the class of '59 at Yale has joined Herb Klar and his group at the Bureau of Traffic Safety.

Steve Petersen of the same organization has recently been promoted to principal traffic engineer.

Sam Hochstein has been appointed director of the Traffic Services Division. Sam will be aided by Ed Bonnelli, the new assistant director.

Frank Sullivan is now assistant to the deputy commissioner.

Roy Cottam of the Department of Traffic was recently appointed alternate delegate to the American Standards Association of the Highway Traffic Standards Board. Roy has also been appointed by President Wetzel to the Special I.T.E. Committee, Use of Radio in Traffic Control.

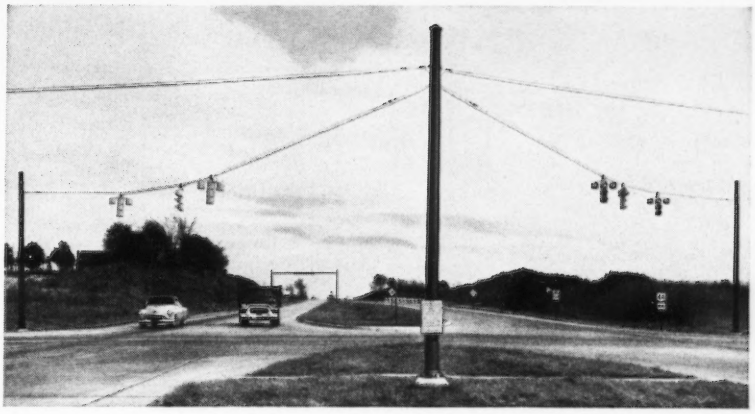
Jim Trautman recently made a trip to the University of Michigan to participate in the conference on expressways and parking.

Bill Gerstle has been promoted to Highway Project Planner at the Port Authority, continuing with the Planning Division of Port Development Department.

WESTERN SECTION

Arizona-New Mexico

The biggest news in Albuquerque concerns personnel changes. Francis C. Burton has left the traffic engineering department and Edwin L. Beck has been installed as Acting Traffic Engineer while the city is looking for a replacement for Mr. Burton. Gene Nelson, who has been with the City of Albuquerque for a number of years as Assistant to the Traffic Engineer and Traffic Analyst, has left to join the staff in Phoenix under Chuck Haley. We hate to

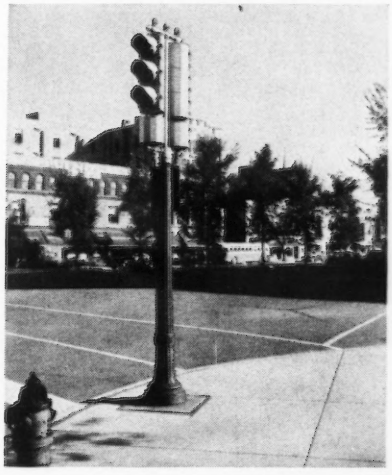


SUSPENSION TYPE

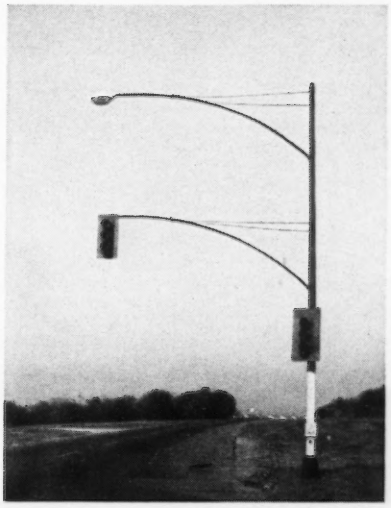
Your signal to savings . . .

UNION METAL TRAFFIC SIGNAL POLES

Steel or Aluminum



PEDESTAL TYPE



MAST ARM TYPE

UNION METAL

Traffic Signal Poles

THE UNION METAL MANUFACTURING COMPANY

CANTON 5, OHIO BRAMPTON, ONTARIO, CANADA

see Gene leave, but know that our loss is certainly Phoenix's and Chuck's gain.

The City of Albuquerque voters went to the polls October 6 and passed a large municipal bond issue. Included in this issue of $1,250,000 are funds to be used for street and traffic signal projects.

The project of relighting the Queen Creek Tunnel is under the supervision of Larry Thompson, Traffic Civil Engineer of the Arizona Highway Department. The Bureau of Public Roads will participate in the funding of this job and, together with the Arizona Public Service Company and the California Division of Highways, gave advice and assistance in the design phase.

Sacramento

Fourteen members of the Sacramento Area were present at the regular after-lunch meeting held on October 5. Boris Petrov, Head, Traffic Inventory Section, Bureau of Public Roads, Washington, D. C., who is on assignment to California to assist in the establishment of a new traffic counting program, gave a talk on "How to Provide States with Traffic Volume Data by a Sampling Procedure at a Minimum Cost." Mr. Petrov's talk was impromptu and thoroughly enjoyed by his audience.

During the Governor's Traffic Safety Conference, 74 California ITE members & guests enjoyed a prime rib dinner at the Parkview. A great big thanks to Rudy Israel and Russ Pearson for the arrangements for the dinner.

Ross Shoaf, President of the Western Section, visited Modesto on October 14 to present to the City Council the Certificate of Recognition for the city's rating of 89 in Traffic Engineering in the National Safety Council Traffic Safety Inventory for 1958. The photograph of the presentation was prominently displayed in the Modesto Bee.

Oregon Area

An era of Traffic Engineering is soon to fade into the past. In the near future, Oregon, the last of the yellow centerline states, is to change to the white centerline. It is with deep regret and mourning that the Traffic Engineering Division bids a fond adieu to its yellow stripe. Apparently there is no place under the sun for non-conformists.

The State Highway Department, in cooperation with the City of Salem, replaced the existing eight inch green arrow signal heads with standard oversize 12 inch green arrow signal heads at all signalized intersections in Salem using the green arrow. It is to be the policy of the State in the future to use oversize green arrows at all such locations on the State Highway System.

The State Highway Departments of Oregon and Washington recently contracted one of the largest toll bridge facilities to be installed in the United States. The initial contract calls for installing 13 toll booths for 14 lanes of traffic on the south end of the Interstate Bridge between Oregon and Washington on US99.

Messrs. Bruce Crandall and Val Johnson from Oregon, Rex Still from Washington and Ellis Mathes and Marvin Lotspeich from Idaho recently met in Walla Walla to discuss the problems of signing the Interstate routes common to all three states.

The State Traffic Engineering Division is preparing to conduct an Urban Transportation Study covering the Portland Urban Area. The origin destination study is to be made in 1960 so as to correlate the date with the 1960 census. This study was instigated by Fred Fowler, Highway Coordinator, Portland.

Ted Dec, the Bureau of Public Roads' Programming and Planning Engineer in Oregon, has been temporarily assigned for one month to the Washington, D. C. office to assist in revising the Bureau's road inventory and mapping manuals.

Los Angeles

The first area meeting of the season was held on Wednesday, October 10th at the Police Academy. Chairman Dick Stanford appointed Jim Angell Area Scribe. He also appointed a committee of three to assist him in planning the programs, printing and mailing announcements, and handling the sale of tickets. Maurice Olson, Ed Granzow and Bob Colpitts volunteered for this important committee. George Bullock very ably reported on the activities of the Western Section meeting in Seattle. Sam Taylor and Harry Parker joined forces to inform the membership of the events at the National Meeting in New York City. Gran Parmelee, in his usual superb form, gave a detailed account of the accomplishments attained at the Governor's Safety Conference in Sacramento. Guy McDonald presented to the membership the labors of the California Coordinating Committee Study Group in the form of five "Concepts" pertaining to the potential organization of a California Coordinating Committee. After many intelligent and thought-provoking comments, the membership voted unanimously to support, in principle, the need for a California Coordinating Committee of the Western Section and to continue to study means by which this can be accomplished.

Hal Durham reports that the City of Downey has just awarded a $72,667 contract to Fischback and Moore, Inc. for the installation of 107 mercury vapor lights for the C. B. C., 47 of these to be 35,000 lumen lights. The contract also includes the modernization of five traffic signals on Firestone Boulevard. The lighting is being financed by a 1911 Act Improvement District, with the City and the State also contributing. Hall reports that during the course of the proceedings, only one protest was received.

Joe Havenner is adding another good man to his engineering staff. Starting November 2, Bill Schempers, formerly of the City of San Diego, will report for duty. Bill and his wife, Anna Mae, are a welcome addition to the Los Angeles area.

Jim Angell reports that two years of labor have finally culminated in the transferring of all operational traffic engineering activities from the Santa Monica Police Department to the T.E. Department.

Inter-Mountain

The Inter-Mountain Area were hosts for the final Freeway Operations Seminar at the Continental Denver Hotel November 16-18, 1959. Jack Bruce and Al Pepper acted as co-chairmen in organizing the Seminar.

John Bradley, traffic engineer of Colorado Springs, reports that the City Council has approved a $200,000 downtown traffic signal improvement program which is to be completed within the next four years. The program consists of a new master control system, new interconnection, and new signals.

It appears that John is getting prepared for the new program since he also reports that Jay Myers, assistant traffic engineer in Colorado Springs, will attend a week of schooling on traffic signals at the Eagle Signal Company in Moline, Illinois.

The Traffic Division of the Wyoming Highway Department has completed the 1959 Annual Speed Study. This served as the after portion of a before and after survey since the Wyoming Legislature raised the speed limits in the spring of 1959. The most significant fact revealed in the analysis and comparison to the 1958 study was that the 85 percentile speed of the out of state drivers changed only 0.1 MPH even though the speed limit was raised 5 MPH. This, once again, verifies the concept that drivers, especially those unfamiliar with the roads, travel at a speed which they consider reasonable and prudent according to conditions regardless of the speed limit which is posted.

Washington

The Washington Area ITE dinner meeting was held at the Top of the Ocean in Tacoma. Ed Horwood, Civil Engineering and Planning Professor from the University of Washington, and a member of ITE, showed slides of freeway access points and adjacent land use development. The pictures were taken by Ed for the Bureau of Public Roads during an extensive tour around the United States this past summer. Ed spent October 12 and 13 in Washington, D.C., lecturing to Bureau of Public Roads trainees on land use planning and highway location relationships.

A technical meeting is planned for Thursday, January 21, 1960. Save the date.

Tom McLeod reports that a sign log is being set up on IBM cards for the three highway districts east of the Cascades. John Chaffee, Spokane Highway District Traffic Engineer, is the instigator of the project and of course Bob Hansen, an ITE comrade who now worries about the capacity of electronic computers instead of roads, is involved. The objectives of the project are to keep a running inventory so that more information can be obtained on sign life, what is failing and why, and so that this information will be readily available for court cases. The data to be tabulated include sign type, mile post, location on right-of-way, letter size and type, message, sign size on destination sign, sign material and color, sign face, post type, date installed, replacement date if any, reason for replacement and serial number. Does anyone who has tried such a program have any pointers for Tom?

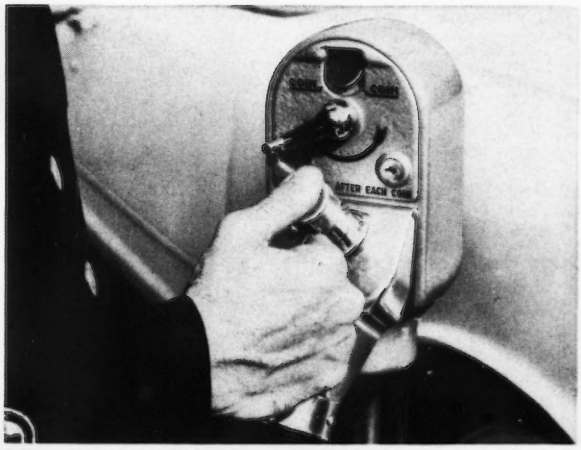
John Chaffee and his staff recently finished a statistical accident study and report on the Spokane Freeway and two parallel routes showing that 325 residents and tourists missed a trip to the hospital in the last two years and 1150 more wrecked cars would be rusting in automobile "bone yards" or be under repair in garages, if the Freeway hadn't been opened in 1957.

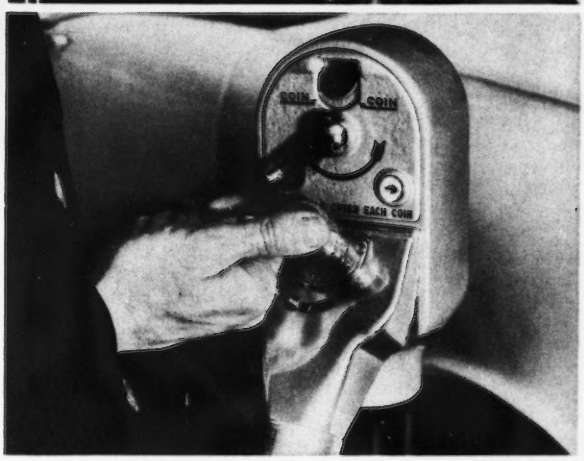
Accident experience for 18 months on the Freeway shows that (1) about one-half of the accidents occur on Freeway lanes away from the interchange areas (2) that over one-half the interchange accidents occurred at one high volume interchange with considerable horizontal and vertical curvature, high curbs, bridge rails, guard rails, 28 lights on standards and signs, (3) that about two-thirds of the accidents are one-vehicle accidents, and (4) that over two-thirds of the accidents were nighttime accidents, about one-half of which occurred between 1:00 and 3:00 a.m. — a time when traffic volume is low and speeds are high.

The accident rate on parallel routes has lessened with the diversion of traffic to the freeway. One of the parallel routes has experienced a decrease in accident rate from 9.1 accidents per million vehicle miles in 1955 to 1.3 between July 1, 1958 and June 30, 1959. The freeway accident rate for the same 1958-59 period was 1.1. The other parallel route showed a moderate decrease in accident rate.

NEW 2-SECOND COLLECTION SYSTEM by "MARK-TIME"

• FAST • SAFE • EASY





Step #1 Locked metal vault on cart is easily rolled from post to post by officer.

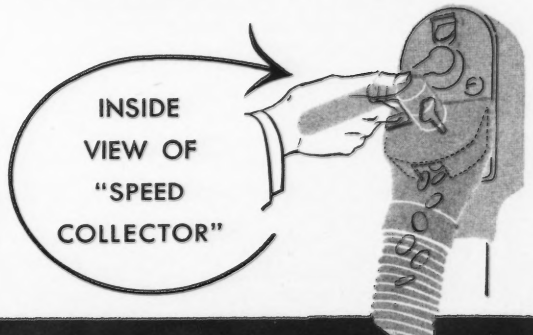
Step #2 Handy "Speed Collector" with super flexible extra wide diameter hose plugs into meter. Then push plunger.

Step #3 Turn handle—money falls safely into vault. Passage of coins is unexposed and 100% secure from meter to sealed collection vault. As "Speed Collector" is removed, coin receptacle is automatically resealed.

This is the fastest, safest, easiest method of collecting from parking meters ever designed. The system is adaptable for use with present "Mark-Time" meters. Complete details and demonstration available on request.

Write for Stereo demonstration with viewer and set of stereo color photos of 2-second collection system in action. See for yourself!

Write for new free book, "Better Parking Means Better Business."



MARK-TIME

M. H. RHODES, Inc.

HARTFORD, CONNECTICUT

IN CANADA, With SPERRY GYROSCOPE OTTAWA, LTD., OTTAWA, ONTARIO

Bay Area

Forty-seven persons boarded the Showboat Restaurant in Oakland for lunch on October 22, after which Virgil Anderson, Legislative Advocate of the California State Automobile Association, outlined the major changes enacted by the State Legislature in California Vehicle Code. One of the more perplexing problems in the future will center around the requirements for speed zoning. The new Vehicle Code provides that speed zones may be established only after an engineering survey, the extent for which is to be outlined by the State Department of Public Works for all other jurisdictions. The question: "What happens if a city council or county board of supervisors ignores the results of an engineering survey and zones some other speed?" still remains to be answered—probably in court cases.

Voters in eight East Bay cities and some unincorporated areas approved a $16.5 million bond issue, which will enable the Alameda-Contra Costa Transit District to go into business, replacing Key System, the present private operator. The preliminary planning for the bond issue and for the operations by the district was done by De Leuw, Cather & Co., with Charles De Leuw in charge, assisted by Israel Gilboa. The District expects to take over about July 1, 1960.

These developments will leave the cities of Richmond and San Pablo without local transit service as things stand now. The two cities are presently served by Key System, but voted against joining the Transit District. Marty Wallen is involved in preparing data and recommendations to guide the city fathers in handling this problem.

Jerry O'Shea was in charge of a special program on freeway operations given at an Institute of Government for the local chapter of the California State Employees Association. These day-long Institutes are designed to keep state employees informed of new developments in all phases of state administration and operations. Assisting Jerry were Al Head, Charlie Nordfelt, and Glen Dillon. (The latter two are finally getting around to sending in their application forms for ITE membership.)

San Diego

It is with deep regret that we of San Diego announce that Bill Schempers of the Transportation and Traffic Engineering Staff of the City of San Diego has accepted the position of Traffic Engineer with the Automobile Club of Southern California and resigned his job with the City effective October 27.

The San Diego Area of ITE has been elected to the San Diego Engineering Council. This culminates almost two years of work on the part of San Diego Area members. Other engineering organizations that are members of the San Diego Area Engineering Council are: The American Institute of Electrical Engineers, American Society of Civil Engineers, and American Society of Mechanical Engineers.

The San Diego Area delegates to the Council are Ed Hall, immediate Past Area Chairman; John Tsiknas, Area Chairman; and Chuck Strong, Area Scribe. All three delegates attended the Council meeting at Admiral Kidd Officers Club on September 24.

It is our feeling that the San Diego Area's membership in the San Diego Engineering Council will further advance the status of Traffic Engineering and Traffic Engineers.

The San Diego Area of ITE has joined with the City of San Diego and the County of San Diego in sponsoring a Traffic Safety Engineering Short Course for the Engineering and Police Staffs of the San Diego Area cities on November 17 and 19. The course is the brain child of Jim Reading, the Traffic Safety Coordinator for the City and County of San Diego. Jim has been hard at work with Marty Bouman and other members of the City and County Traffic Engineering Staffs developing a course outline for what we think will be an outstanding short course in traffic safety engineering.

The Board of Supervisors of San Diego County has approved the construction of a section of four lane divided roadway in the unincorporated community of Lemon Grove. This was done over the protest of local businessmen groups. This is a major breakthrough for good traffic engineering design over the wishes of the uninformed local pressure groups.

MICHIGAN SECTION

A meeting was held on September 30, 1959 at Elmwood Casino, Windsor, Ontario, Canada.

The meeting was called to order by President Russell E. Harrison at 8:00 P.M. Setting was in the attractive "Empire Room" of the beautiful Elmwood Casino.

President Harrison discussed the formation of a Committee to review and study the Constitution and By-Laws of the Michigan Section for desirable or needed changes. The conduct or procedures in the nomination and election of Officers are to be resolved in a defined or established pattern.

President Harrison urged understanding and full support for the two Amendments proposed for consideration by the parent body, "Institute of Traffic Engineers." 1. Membership Dues Increase, and 2. Ability of Associate Member to hold a Directorship in the National Organization.

Several questions were raised on the purpose of or the need of a dues increase. Member A. F. Malo, Vice-President of the National Organization, explained in minute and clear detail the aspects of the dues proposal. Eighty-one per cent of the voting members present indicated support for the Dues Increase Amendment. Secretary instructed to acquaint the National Office with the results mentioned. Associate Member Proposal was discussed briefly and left to individual determination.

President Harrison, on behalf of the Michigan Section of ITE, expressed sincere appreciation to the National ITE Awards Committee in recognition to several Michigan Cities for their Traffic Engineering endeavors, to mention: Kalamazoo, Saginaw, Grand Rapids and Flint (we feel highly honored and humbly appreciative).

Program Chairman Joseph Marlow introduced Jerome (Jerry) Franklin, an absentee member for over two years (assignment to the Orient), Subject: Travelogue and Mementoes of the Exotic Near East. Dissertation on Geography, Customs, Picture Slides and interpretations were very revealing and most entertaining. Humor and fact injected into the presentation were a desirable blend for the subject matter. Attendance of seventy-three persons was a gratifying spectacle.

The experience and enjoyment graciously administered by our Canadian neighbors will be cherished and remembered by all.

The next meeting was held at the Canopy Hotel in Brighton, Michigan. Again there was excellent attendance.

The recognition of our section by the "National Body" in selecting our immediate past president, William Marvin, as a member of the national nominating committee was announced. The Michigan Section is highly honored and most appreciative of this action.

President Harrison asked the members to consider a date and facilities for a joint meeting of the Tri-State membership — Indiana, Ohio, Ontario and Michigan. Al Hayes and Ed Gervais were appointed co-chairmen for this. In addition a Constitution and By-Laws Committee composed of Walter L. Steinfatt, Barney Cyrberski and Harold L. Hickman was named.

Member Raye C. Eastman, Planning Consultant of Ann Arbor, spoke on "Europe's Highways and By-Ways." He gave an entertaining and excellent presentation with slides which was greatly enjoyed.

CANADIAN SECTION

A letter from Section President, W. H. Finnbogason, circulated to the membership, dealt with the outstanding accomplishments of 1959—namely the completion of the preparation of the Uniform Manual for Traffic Control Devices for Canada and good progress made toward becoming a full-fledged District of ITE. He urged continuing and active interest on the part of all members in both Section and Association activities.

The Extension Department of the University of Toronto plans to present a series of ten two-hour lectures on Traffic Engineering, starting in January, 1960. The lecturers chosen to present the course are W. Q. Macnee and P. E. Wade of the Department of Highways.

The lectures will be designed as an introduction to the subject with the objective of presenting the following:

1. A basic idea of traffic movement, control and planning.
2. A general approach to traffic problems, rather than detailed techniques.
3. A survey or summary of the field.

With the improvement in King's Highways throughout the Province and the introduction of the new "points system" early in 1959, a revision of existing maximum speed limits is now in effect or under consideration on more than half of the King's Highway mileage in Ontario.

The Traffic Section of the Department of Highways has already completed studies on all sections of the King's Highway system where higher speed limits might be feasible with full regard for traffic safety. The recommendations that have been made are subject to approval by the Department of Transport and approval by Order-in-Council before they can become effective. The Department of Highways is prepared to re-sign the highways with several thousand new signs as soon as Orders-in-Council are issued.

Before the most recent studies were completed on August 1, 1959, revisions of speed limits had already been put into force with excellent results on some 500 miles of highway including the increase in maximum speed limit to 60 m.p.h. for passenger cars and 55 m.p.h. for commercial vehicles on dual-lane controlled access highways such as Highways 400, 401 and the Queen Elizabeth Way. Also, additional recommendations covering some 600 miles had been forwarded for approval by Order-in-Council.

* * *

Department manager: "Yes, we have a selection of loafers. I'll see if I can get one of them to wait on you."

* * *

If you think the younger generation isn't interested in getting ahead, just wait until one of them pulls up next to you at a stop light.

now...

the ECONOMY and FLEXIBILITY of radio with the RELIABILITY of TRANSISTORS

MOTOROLA RADIO TRAFFIC CONTROL

Transistors make the difference! Now you can plan for CITY-WIDE traffic control with radio's economy and flexibility—with year-in, year-out reliability of Motorola's fully transistorized intersection receivers.

Here's how it works . . . Centrally-located radio reaches all areas *economically*—controls intersections individually or in any combination. At the intersection the receiver-decoder equipment operates without attention—no adjustments are necessary or possible in the decoder circuitry.

All programing changes are made at the radio control center. Here you get new control *flexibility* —with high speed, high capacity automatic programing that can be changed instantly when needed. At the control center, an illuminated display panel shows the program in effect for the *entire* system, not just the last transmitted program for a few specific intersections. Pushbuttons enable manual control of any function.

With completely transistorized circuitry, sealed tone units and heavy-duty relays at the intersection —you're assured of unsurpassed *reliability*, so necessary for traffic control. Learn how Motorola radio can do the job as a new system, or to work with your present plant. Write today.

MOTOROLA RADIO TRAFFIC CONTROL

Motorola Communications & Electronics, Inc., 4501 Augusta Blvd., Chicago 51, Ill. • A Subsidiary of Motorola Inc.

DURO-TEST *announces*

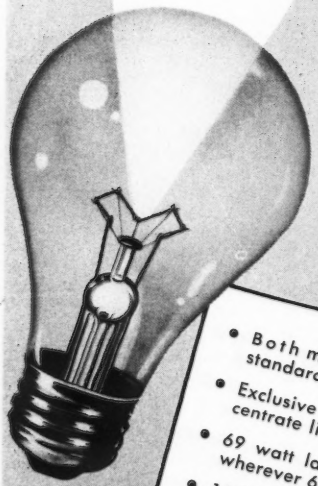
69 WATT **120 WATT**

2 NEW SIZES!

SUPER V-BEAM®

AMERICA'S FINEST TRAFFIC SIGNAL LAMPS

RATED AT **6000 HOURS**



- Both meet new I. T. E. lumen standards.
- Exclusive V-Beam filaments concentrate light at drivers eye level.
- 69 watt lamp gives extra punch wherever 67 watt lamps are used.
- 120 watt lamp combats "sun phantom" . . . may be used in place of 150 watt lamps in yellow and green signals.
- Both far outlast conventional signal lamps slashing replacement costs. Reduce "burnout" time and improve your safety factor with these new SUPER V-BEAMS.

SUPER V-BEAM lamps include:
40, 60, 100, 150 watts . . . 5000 hours.
67 watts . . . 8000 hours.
ALL FIT STANDARD 8" AND 12" SIGNALS

DURO-TEST CORPORATION
NORTH BERGEN • NEW JERSEY

DURO-TEST ELECTRIC LTD.
23 GURNEY CRESCENT . . . TORONTO
Montreal • Winnipeg • Vancouver

DURO TEST

Yearbook Changes

ALLEN, Robert J. (Member)
Executive Director, Arizona Traffic Safety Foundation, Room 217, 132 South Central Avenue, Phoenix, Arizona. ALpine 4-5494

BATTS, Herman M. (Associate)
City Traffic Engineer, City Hall, Des Moines, Iowa. CHerry 4-2181, Ext. 231

BELL, Frederick L. (Associate)
Consulting Engineer, Frederick L. Bell & Associates, P. O. Box 728, Tallahassee, Florida. 2-0359

BENNETT, Richard O. (Affiliate)
Secretary-Treasurer, Insurance Institute for Highway Safety, 1710 H. Street, N.W., Washington 6, D.C. STerling 3-1671

BURTON, Francis C. (Associate)
519 Silver Avenue, S.W., Albuquerque, New Mexico. CHapel 2-9141

CHAMBLISS, Jack W. (Member)
Traffic & Electrical Engineer, City Hall, Montgomery, Alabama. AMherst 2-4634

COCHRAN, George A. (Junior)
Senior Traffic Analyst, Louisiana Department of Highways, Box 4245 Capitol Station, Baton Rouge, Louisiana. DIckens 2-6851, Ext. 87 SEND MAIL: 1939 Glendale Avenue, Baton Rouge 8, Louisiana.

COFFIN, John F. (Junior)
Student, Yale Bureau of Highway Traffic, New Haven, Connecticut. SEND MAIL: 13 Wildwood Drive, Branford, Connecticut.

CONNER, Samuel H. (Associate)
City Traffic Engineer, City Hall, Portland, Maine. SPruce 4-1431 SEND MAIL: 84 Rockland Ave., Portland, Maine.

ELLIOTT, Earnest W. (Associate)
Highway Associate Engineer-Planning, Connecticut Highway Department, 24 Wolcott Hill Road, Wethersfield, Connecticut. CHapel 9-5211, Ext. 482 SEND MAIL: 57 Highridge Road, South Glastonbury, Connecticut.

FREEDMAN, Allan J. (Associate)
Urban Studies Engineer, Planning Branch, Department of Highways of Ontario, Parliament Buildings, Toronto 2, Ontario, Canada. EMpire 3-1211, Ext. 2-2581

FRIELING, Gerald H. (Member)
Associate, Wilbur Smith & Associates, 318 East 51st Street, Kansas City, Missouri. VAlentine 1-0491

GEISSLER, Felix D. (Associate)
Director of Electronic Data Processing, Pennsylvania Department of Highways, Room 525, North Office Building, Harrisburg, Pennsylvania. CEdar 8-5151, Ext. 4068 SEND MAIL: 290 Rumson Drive, Harrisburg, Pennsylvania.

GERLOUGH, Daniel L. (Associate)
Senior Staff Engineer, Ramo-Wooldridge Division, Thompson Ramo Wooldridge, Inc., 8433 Fallbrook Avenue, Canoga Park, California. TRiangle 3-3210

GILBERT, Jerry P. (Associate)
City Traffic Engineer, Traffic Engineering Department, 617 East Jefferson Street, Springfield, Illinois. LAkeside 8-8332

HALL, Edward M. (Member)
Director, Transportation & Traffic Engineering, City of San Diego, Food and Beverage Building, Balboa Park, San Diego 1, California. BElmont 9-7511, Ext. 313 SEND MAIL: 6165 Lambda Drive, San Diego 20, California.

KOERT, Adrian H. (Member)
Insurance Institute for Highway Safety, 1710 H Street N.W., Washington 6, D.C. STerling 3-1671

LAPIN, Howard S. (Associate)
Lecturer & Research Associate, Institute for Urban Studies, 3400 Walnut Street, Philadelphia 4, Pennsylvania.

MAY, Adolf D., Jr. (Junior)
Member of Technical Staff, Ramo-Wooldridge Division, Thompson Ramo Wooldridge, Inc., 8433 Fallbrook Avenue, Canoga Park, California. TRiangle 3-3210

McREYNOLDS, Marshall B. (Associate)
President, Traffic Engineers Supply Corp., 1015 Bevridge Road, Richmond, Virginia. ATlantic 8-9632

MELZER, William T., Jr. (Associate)
Engineer of Traffic Operations, Baltimore County, Department of Public Safety, County Office Building, Towson 4, Maryland. SEND MAIL: 121 Taunton Road, Catonsville 28, Maryland.

MYERS, Dwight T. (Member)
Director of Marketing, John Clarkeson, Consulting Engineer, New York, New York. SEND MAIL: 628 East 20th Street, New York 9, New York.

SCHEMPERS, William, Jr. (Junior)
Traffic Engineer, Engineering Department, Automobile Club of Southern California, Term. Annex Box 2890, Los Angeles 54, California. RIchmond 8-3111, Ext. 786

SCRUGGS, John M. (Junior)
Traffic Planning Engineer, Bureau of Traffic Engineering, Room 1002, City Hall Annex, Philadelphia 7, Pennsylvania. MUnicipal 6-9700, Ext. 698 SEND MAIL: 501 W. Hortter Street, Apartment A-5, Philadelphia 19, Pennsylvania.

STEWART, A. Lynn (Member)
Traffic Engineer, Department of Public Works, City of Santa Barbara, P. O. Box 1440, Santa Barbara, California. WOodland 6-7171

THILLAINAYAGAM, R. (Associate)
Divisional Engineer (Highways) Highways Research Station, Madras, 25, India.

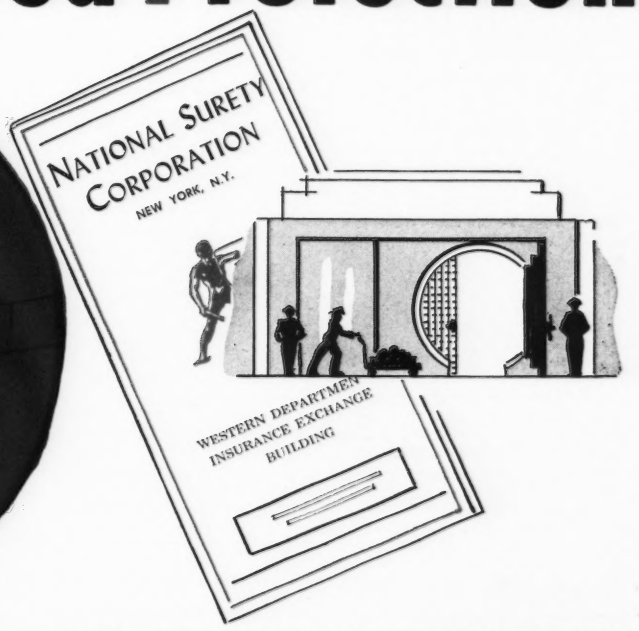
WECKESSER, Paul M. (Junior)
Assistant Traffic Engineer, New Jersey Turnpike Authority, New Brunswick, New Jersey. CHarter 7-0900 SEND MAIL: 11 Martin Avenue, Apartment 1-A, Nixon, New Jersey.

WILLIAMS, Robert Carroll, Jr. (Junior)
Director of Traffic Engineering, Traffic and Planning Associates, Post Office Box 1691, Hickory, North Carolina. DAvis 7-2621

Only THE DUNCAN V. I. P.*

offers

Vault Insured Protection*



World's first parking meter purposely created to combat the costly destruction of vandalism and theft of meter revenues. Exhaustive tests prove Duncan's V.I.P. is the answer to this serious ever-increasing problem which plagues almost every city, big or small.

Backed with insurance — by Duncan. Further evidence that the Duncan V.I.P. represents the highest degree of security ever found in a parking meter, Duncan backs its V.I.P. with *written* insurance. With each V.I.P. meter order, Duncan issues a one-year insurance policy indemnifying the city against physical loss due to vandalism. This policy is issued and paid for by Duncan.

V.I.P. exclusive Submerged mystic-lock* increases security to the coin compartment. Non-exposure greatly reduces malicious lock area vandalism.

*TRADE MARK

DUNCAN PARKING METER

DIVISION OF MOTOR PRODUCTS CORPORATION

835 N WOOD STREET • CHICAGO 22, ILLINOIS

The World's Leader in Parking Meters

Positions Available

ENGLEWOOD, COLORADO

Position: Traffic Engineer with operational supervision and planning for all traffic engineering work in city of 35,000.
Requirements: Formal training in signal engineering in accredited course and two years' experience. Degree in electrical or civil engineering desirable. Experience with signals should be extensive.
Salary: $441 per month minimum to start. Fringe benefits.
Apply: Joe M. Lacy, Planning and Traffic Director, P.O. Box 178, Englewood, Colorado.

RICHMOND, VIRGINIA

Position: City Traffic Engineer.
Requirements: College graduate plus five years' experience in traffic engineering, four years of which must have been in responsible charge of such work.
Salary: $7,176-$8,580 annually.
Apply: Melvin B. Lubman, Department of Personnel, Room 314, City Hall, Richmond, Virginia.

METROPOLITAN DADE COUNTY, FLORIDA

Position: Traffic Planning and Design Engineer, Department of Traffic and Transportation.
Requirements: Graduation from recognized school in civil engineering, and experience in highway geometric and bridge design and cost estimating. Experience in projecting O&D data desirable.
Salary: $534 to $680 per month with fringe benefits; Civil Service.
Apply: Department of Traffic and Transportation, Metropolitan Dade County, 850 N. W. 23rd Street, Miami 37, Fla.

CITY OF NORWALK, CALIFORNIA

Position: Asst. City Engineer—to supervise the engineering functions of the City and to plan, direct and coordinate a traffic control program and to do other work as required.
Requirements: Graduation from college of civil engineering, four years engineering experience, two of which have been in supervisory capacity, and at least one year in traffic engineering.
Salary: $710-$862 per month.
Apply: Personnel Office, City Hall, Norwalk, California.

DISTRICT OF COLUMBIA GOV'T DEPT. OF HIGHWAYS & TRAFFIC

NEW POSITIONS AVAILABLE IN:

Traffic Engineering Division

Position: Supervisory Traffic Engineer, Chief of Investigations, Surveys, Research and Inventory Section.
Salary: $10,130-$11,090.
Requirements: BSCE degree, specialized training in traffic engineering, and 5 years responsible experience.

Position: Supervisory Traffic Research Engineer.
Salary: $8810-$9530.
Requirements: BS degree in CE or EE with some training and experience in traffic engineering.
Position: Supervisory Highway Engineer.
Salary: $8810-$9530.
Requirements: Degree, preferably BSCE, with some training and experience in traffic research or road inventory.

Position: Supervisory Highway Engineers.
Salary: $8810-$9530.
Requirements: Degree, preferably BSCE, with experience in highway layout, design and estimating.
Position: Traffic Signal Engineers.
Salary: $6285-$8230.
Requirements: BS degree, preferably CE or EE, with experience in signal layout and coordination.

Office of Planning and Programming

Position: Highway Research Engineer, Chief of Metropolitan Area Origin and Destination Survey Section.
Salary: $10,130-$11,090.
Requirements: BSCE degree or equivalent, with experience in conducting and analyzing origin and destination surveys.

Position: Highway Research Engineer, Chief of Planning Research Section.
Salary: $10,130-$11,090.
Requirements: BSCE degree with experience in highway planning, research and economic investigations.

Position: City and Highway Plans Analyst.
Salary: $7030-$8230.
Requirements: Degree with experience in city and highway planning.

Benefits: Federal retirement, sick and vacation leave, and participation in insurance plans.
Apply: Personnel Officer, Department of Highways and Traffic, District of Columbia Government, 14th and E Streets, N.W., Washington, D. C.

Letter to the Editor

Editor's Note: Following are excerpts from a letter from Leslie J. Williams, Member, ITE, who is presently in Turkey on a UN project. The first part of his letter concerned experiences in England en route to his new job. He continues:

The flight from London by PAA to Ankara was not up to BOAC, but then I had been spoiled. Flying over Europe and looking down as well as stopping was interesting, but as we neared Istanbul the scenery became fascinating.

It was dark when we left Istanbul and I've seen N.Y.C., San Francisco, L.A. and other cities at night, but the scintillating lights and starlike patterns of lights on the water from Istanbul were hypnotizing. It was beautiful.

At Ankara airport I was met by an old schoolmate from the Harvard Graduate School of Engineering (around 1935) Irfan Tumer, who is a big contractor in Turkey, and a representative from the UN and the Turkish Government.

It was dark and the ride in from the airport long, but even so the surroundings were different.

The next day I awoke in the Barikan Oteli, in a different world, to the tune of a stepped-up tempo. As I wandered around, everything seemed in the process of change. Old streets were being bulldozed into multi-lane boulevards. Porches or anything in the way came down and were shoved ahead of the bulldozers. Buildings are going up everywhere.

It is here in Ankara that the blending of the New and the Old and the East and West is crystalizing. When I left England in 1923, Ankara was but a small provincial town, center of Hittite culture. In the time since 1923, Ankara has grown to over 500,000 with massive monuments and buildings expressing the vigor and vision of a strong people. Ankara is growing fast and will in my lifetime pass the million mark. Embassies representing the nations of the world have built their palaces here, and the military is everywhere.

Following the usual formalities of meeting VIP's, Irfan and everyone at UN and the Ministry of PW seemed to be devoted to getting me settled and advising me about what to get in the way of living quarters. If you listen to all, you get the idea that there's a shortage of everything and the solution is to buy a modern deluxe trailer in the US and ship it over.

Come to think of it, this is not a bad thought except I haven't spent a winter here yet. But if the described discomforts of winter are as exaggerated as were those of summer, I'm not worried. It's hot during the day but I have not felt uncomfortable but once and that was after I had filled myself one noon-time with sliced meat (Doner Kebab) and stuffed green peppers (Biber Dolmasi) washed down with sparkling Turkish beera. Then I perspired as I would on a summer's day in Philadelphia or Manhattan without the beera. The climate is dry and dusty and up 3000 ft. which takes getting used to, but the nights are breezy and cool and can be chilly even in August. Why anyone wants to go to Istanbul to escape the heat, I don't know. So if the temperature here in winter is comparable to Boston's, I shall be comfortable. But they have got to have rain here sometime, and then with all

the construction going on, it must be a muddy, slimy, slippery quagmire. I hope I'm wrong about that.

There is a shortage of some things. The apartment I'm in, while it is delightfully and tastefully furnished — and Turkish style — has no telephone and my beautiful young landlady, Marih, has had an application in for four years. The place is piped for gas, but gas is not promised before Christmas. So that means electricity, which is expensive — and where to get an electric stove? So I'm chaffing off the finest array of electric plates, frying pans, roasters etc. anyone could dream of. Then there's heating. Coal is in short supply and coke is too. Therefore it seemed wise to get into an apartment "furnished" where the winter's supply of coal is in the cellar right now. A few electric heaters may come in handy, but we have a good fireplace and Irfan has guaranteed a couple of loads of wood from his building firm. Plus bearskin rugs that are down in front of the fireplace, Blanche, the twins and I should not freeze in 1960. We have great big pull drapes on all the windows which lead out onto balconies. These are pulled on the sunny side and these big door windows are double glass doors. It is cool indoors in summer and warm in winter the neighbors, who have been here during winter, assure me.

All the architecture of today is strictly modern, quite functional except the public buildings and embassies which appear more substantial and fundamental in design. In some instances I like balcony design such as when living next to a charming person of the opposite sex—sort of communal like—but when privacy is the choice, then this design lacks something. Landscaping around the average building, except public buildings, is conspicuously absent. This place may have been covered with trees at one time, but only now are they coming back and things are beginning to grow.

Ankara is a series of hills, some inhabited for thousands of years, others as modern as the latest Harvard School design creations. Nothing seems finished or if it is, the ubiquitous bulldozer can come along any minute. This is a traffic engineer's paradise or a prison depending on how you look at it. One can go crazy with ecstasy or frustration—or take things as they are and start from there. I'm choosing the latter course.

A striking feature of Ankara is the absence of roadway markings, stop signs, one-way street signs — and the residential streets are narrow — other signs, even including street name signs. I did come across here and there a traffic signal mounted on a thin pipe in the middle of the roadway and actually working — but you had to look closely to see the dim light. (Must be five watt bulbs plus lenses coated with dust.)

Main boulevard lighting is good, but the geometry of the roadway varies unexpectedly and since the lights are over the center of the roadway the curbs are hard to see. Add to this the pedestrian preference for walking in the roadway, despite a law giving the motor vehicle the right of way, and you can readily imagine why motor vehicle operators ride the middle of the highway. Taxis are mostly on the left, driving without lights or one small, dim parking light. Add a dash of animal-drawn traffic—notice I said *animal*, not horse-drawn — and where does one begin? The nearest corner seemed to me the best place because the law specifies a corner clearance and that one clear lane for moving traffic must be maintained. So, the taxis park on both sides up to the corner. The result? A shrieking of horns until someone gives way.

There is no traffic engineering, no traffic safety education. There are traffic police, but no enforcement. The three "E's" are absent. Everybody speeds! If involved in an accident, you set into operation an involved procedure wherein everyone enters the act to determine what percentage negligence should be allotted to those involved. Ninety-five per cent to one, five per cent to the other—and then the "experts" for the other side show the opposite! Fascinating for one who has had Expert Witness work. When I come back I'd be smart to get a law degree and enter negligence work. After this experience it would be duck soup. In the meantime, my job is to find ways to reduces the causes of traffic accidents.

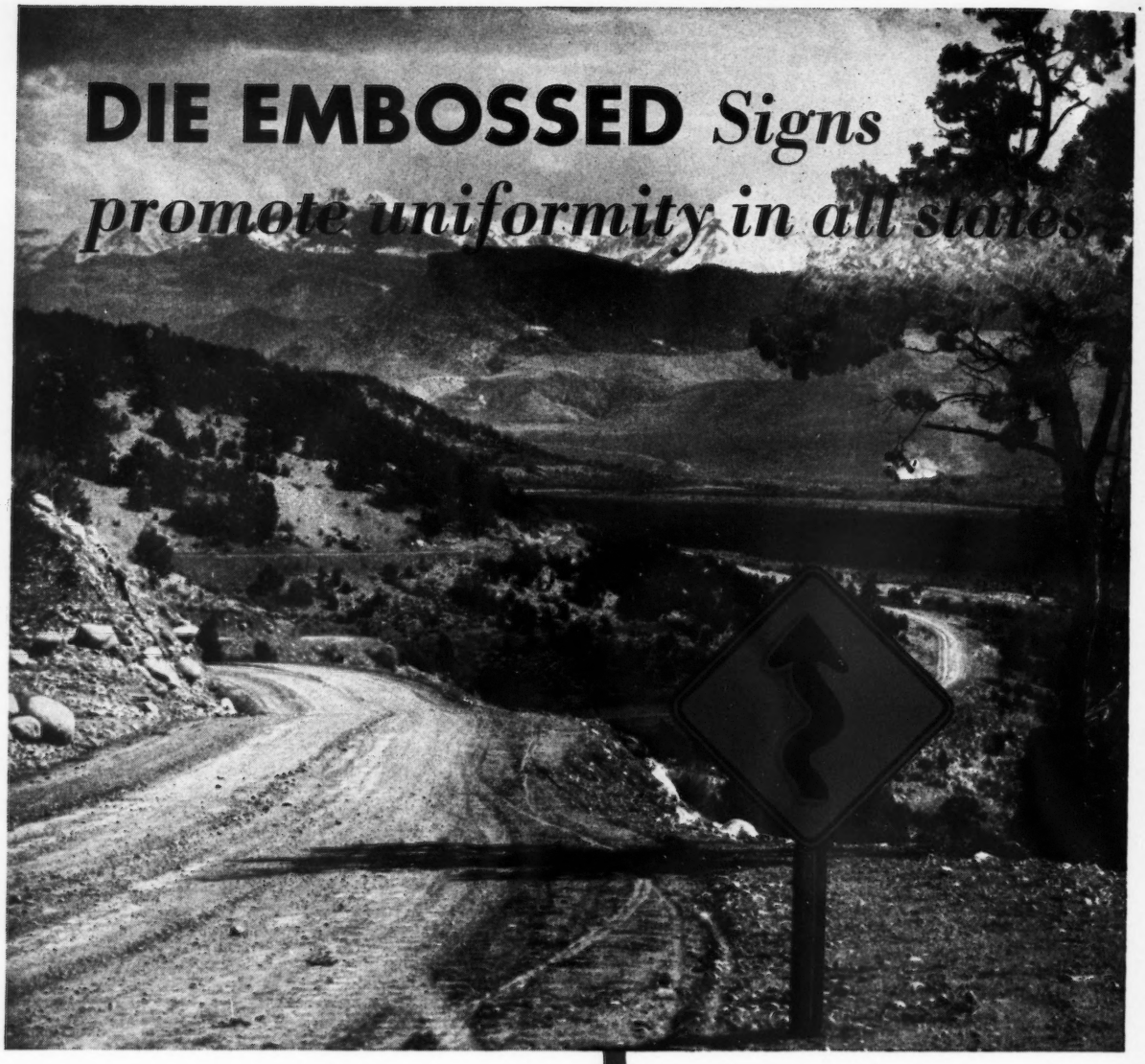
I took a trip up to the Black Sea to a pearl of a place called Amasra, about 300 miles from Ankara. I've never seen such roads. It's a national system, and the map and generally the construction are good, but maintenance is below standard. Visualize big trucks with several trailers filled with everything, including people, with things projecting from all sides; buses of all types with people and baggage on top; donkeys, oxen and carts, no lights, parked with a fort of rocks ringed around them which they leave in the road when they drive on; repairs being made in the middle of the road — or wherever the driver happened to stop. Vehicles are kept together — how I don't know. These people are getting the most from such transit facilities as they have.

There is no continuity to the width of the roadway or "shoulders." Turns meet you without warning. The surface can be "smooth" or "rough" — and change without notice.

If I was looking for an experience I found it driving back from Amasra at night. Until then I had thought the Turks (including my chauffeur, Yilmaz), as well as the many car-driving Americans and Europeans, simply had lost all sense about driving. But after riding at night I could readily see (when I *could* see on those dark roads where everything blends in the headlights) why Yilmaz drove mile after mile with two-thirds of the car on the left hand side of the road. The character coming from the opposite direction would be to the right. Then we would "pass" with horns blowing — we have two horns which sound like a combination of a Greyhound horn and the shrill of an English express train flying through the night. The truth of the matter is that the marginal frictions are more to be feared than medial friction or head-on collisions.

Sometimes two of these behemoths of the road meet head on when traveling without lights. Then blood spatters everywhere and I understand if U.S. traffic fatality rate equalled the Turkish rate on a mileage traveled basis, U. S. highway fatalities would have jumped from approximately 38,500 to close to half a million. No one knows the extent of personal injuries and property damage and economic loss from accidents. So though in one way the Turks do a fabulous job of keeping their crates together and moving, they squander what little equipment they have in smash-ups. And to educate is a problem with two-thirds of the population, they tell me, illiterate.

. . . With this I had better say "Allaha Ismarladik" or "Good Bye" for the time being. I've sent in my first report to the United Nations and a Work Program to the General Director of Highways. I've finished the organiza-



In state after state, uniformity in city and highway traffic signs is promoted and maintained by the manufacturers of DIE EMBOSSED signs. Imagine the hodge-podge if every state, every community, selected their own size, color, shape and wordings. Stick with uniform DIE EMBOSSED signs from reputable manufacturers.

Die Embossed Signs *are your* Best Buy

Sharply embossed letters and borders add rigidity, prevent specular reflection, increase angle visibility, reduce vandalism. Baked enamel finish is highly rust resistant . . . adds extra years of life to both plain and reflectorized signs.

- S. G. ADAMS COMPANY, ST. LOUIS 3, MO.
- GOPHER STAMP & DIE CO., ST. PAUL, MINN.
- GRIMM STAMP & BADGE CO., ST. LOUIS, MO.
- LYLE SIGNS, INC., MINNEAPOLIS, MINN.
- MIRO-FLEX CO., INC., WICHITA, KANSAS
- N.S.E. SIGNS & STAMPINGS, B'HAM, ALA.

PARK-O-METER Pioneer IN AUTOMATION

Long before coining of the word AUTOMATION, Park-O-Meter pioneered in the field of automatic operation which, today, is sweeping into every activity around the world.

Park-O-Meter . . . the first complete, automatic parking meter . . . was then, as today, the world's most MODERN parking meter.

Ask for detailed information regarding the latest model Park-O-Meter. Compare before you decide.

Ask for detailed information covering our completely automated PARK-O-GATE and *Ticket Spitter* Systems, for municipal or private off-street, self-service parking facilities.

Magee-Hale PARK-O-METER COMPANY 3909 Willow Springs Road Oklahoma City 12, Oklahoma

Professional Service Directory

DE LEUW, CATHER & COMPANY
CONSULTING ENGINEERS
Public Transit — Subways
Traffic & Parking — Railroad Facilities
Expressways — Industrial Plants
Grade Separations — Municipal Works
Urban Renewal — Port Development
150 North Wacker Drive, Chicago 6
San Francisco — Toronto — Boston

Traffic - Parking - Highways - Transit - Design Consulting - Financing Aids
City Planning - Urban Redevelopment
E. A. BARTON and ASSOCIATES
• *Consultants* •
Cleveland Transit Building • Cherry 1-0600 • Cleveland 14, Ohio
New York City • Toronto • St. Louis

GEORGE W. BARTON & ASSOCIATES
CONSULTING ENGINEERS
Traffic — Transportation
Parking — Highways
600 Davis Street
Evanston **Illinois**

EDWARDS AND KELCEY
ENGINEERS AND CONSULTANTS
Highways — Structures — Airports
Traffic — Parking — Soils
Ports — Parks — Sewerage
3 William Street, Newark 2, New Jersey
Boston — New York
Salt Lake City — Minneapolis

RAMP CONSULTING SERVICES, INC.
Parking & Traffic Surveys **Design Services**
Parking Programs **Feasibility Studies**
2 West 46th Street, New York 36, N. Y.
Formerly Consulting Service Division
Ramp Buildings Corporation

tion chart phase and have a joint work committee going composed of staff representatives of planning, design, engineering, maintenance, enforcement and administration working on hazardous locations and palliative and remedial measures. I have short courses planned on subject matter on which the officials may be short. Then they can go to depth with their employees. I have a top level set of lectures in process for the general directors, Ministry, at policy level on coordination in planning and operating transportation facilities. So we ought to have a real program going, and a number of case examples in operation before I leave next July.

I'm terribly happy to be able to do something constructive with the training and experience I have in planning and traffic. The Turkish people are a sturdy race, very courteous and most friendly. I've made many friends already. These people are honest in their desires and I'm sorry I didn't undertake this type of assignment long ago.

I'm sorry to be away from my friends in the U.S. but I shall look forward to seeing you next year. In the meantime, I will write from time to time and the very best to you.

Cordially,

LES

INDEX TO ADVERTISERS

A'G'A Division of Elastic Stop Nut Corporation	2
Automatic Signal Division of Eastern Industries	10
Cataphote Corporation	8
Douglas Fir Plywood Association	40 & 41
Duncan Parking Meter	57
Die Embossed Sign Mfg.	60
Duro-Test Company	56
The Eagle Signal Corporation	6
Flex-O-Lite Manufacturing Corporation	4
Lawter Chemicals, Inc.	35
Magee-Hale Park-O-Meter	61
Marbelite Company	50
Minnesota Mining & Manufacturing Company	31, 32, 33, 34
Miro-Flex Company, Inc.	47
Motorola Communications	55
Norwalk, California	38
Planet Corporation	36
Radiator Specialty Company	48
B. G. Reilly Company	29
M. H. Rhodes, Inc.	53
Rockwell Manufacturing Company (Dual)	5
Time-O-Matic, Inc.	38
Traffic Signals, Inc.	49
Union Metal Mfg. Company	51
United States Savings Bonds	3
Wald Industries	Back Cover

Professional Service Directory

TRAFFIC ENGINEERING — HIGHWAY PLANNING

BRUCE CAMPBELL & ASSOCIATES
ENGINEERS

177 MILK STREET • BOSTON 9

PARKING — AIRPORTS — SHOPPING CENTERS

PARSONS, BRINCKERHOFF
QUADE & DOUGLAS
Engineers

Bridges, Highways, Tunnels, Airports, Subways, Harbor Works, Dams, Canals, Traffic, Parking and Transportation Reports, Power, Industrial Buildings, Housing, Sewerage and Water Supply.

165 Broadway — New York 6, N. Y.

CRAWFORD, MURPHY & TILLY
CONSULTING ENGINEERS

Water Works - Impounding Reservoirs
Highways - Municipal Streets - Expressways
Traffic Problems - Airports
Swimming Pools
Sewers - Sewage Treatment
Waste Treatment - Storm Drainage
Flood Control - Surveys and Reports

755 So. Grand Ave., W.; Springfield, Ill.
Lakeside 8-5619

HOWARD, NEEDLES,
TAMMEN & BERGENDOFF
Consulting Engineers

Traffic Analyses — Transportation Studies
EXPRESS HIGHWAY PLANNING
REPORTS AND DESIGN
ADMINISTRATIVE SERVICES

1805 Grand Avenue
Kansas City 8, Missouri

New York — Cleveland

HARDESTY & HANOVER
CONSULTING ENGINEERS

BRIDGES — Long Spans of All Types
Movable — Lift, Bascule & Swing
Hanover Skew Bascule
Grade Crossing Eliminations
Other Structures — Foundations
Expressways and Thruways
Design — Supervision — Inspection
Valuation — Reports

101 Park Avenue — New York 17, N. Y.

PALMER AND BAKER ENGINEERS, INC.
CONSULTING ENGINEERS — ARCHITECTS

Surveys — Reports — Design — Supervision — Consultation
Transportation and Traffic Problems — Tunnels — Bridges — Highways — Airports
Industrial Buildings — Waterfront and Harbor Structures
Graving and Floating Dry Docks
Complete Soils, Materials and Chemical Laboratories

Mobile, Ala. — New Orleans, La. — Washington, D.C.

S. Herbert Taylor — Frank J. Sleeper
David L. Taylor — William H. Taylor

SHERMAN, TAYLOR & SLEEPER
CONSULTING ENGINEERS
(All phases of Civil Engineering)

501 Cooper Street, Camden 2, N. J.
WOodlawn 6-2552

Park & Norwood Aves., Merchantville 8, N. J.
NOrmandy 3-4848

GANNETT FLEMING CORDDRY and CARPENTER, INC.
---ENGINEERS---

CONSULTING SERVICE FOR TRAFFIC, PARKING and TRANSPORTATION PROBLEMS
City Planning — Highways — Bridges — Flood Control
Water Supply — Sewerage — Industrial Waste — Garbage Disposal
Appraisals — Investigations — Management

600 NO. 2nd STREET — HARRISBURG, PA.
Pittsburgh, Pa. — Philadelphia, Pa. — Daytona Beach, Fla. — Medellin, Colombia, S.A.

JENKINS, MERCHANT & NANKIVIL
Consulting Engineers

Municipal Improvements — Gas Systems
Highways & Airports — Water Systems
Power Development — Sewerage Systems
Traffic Surveys — Industrial Plants
Flood Control — Recreational Facilities
Investigations and Reports

801-805 East Miller St. — Springfield, Ill.

TRAFFIC, TRADE AND TRANSPORTATION CONSULTANTS

WASHINGTON, D. C.
METROPOLITAN AREA

409 Brentwood Place, Alexandria, Virginia
Telephone: South 8-4082

FREDERICK L. BELL
& ASSOCIATES, Inc.
CONSULTING ENGINEERS

Traffic and Parking Surveys
Street and Highway Design

P.O. Box 3001 MSS
Phone 4-2332

Tallahassee — Florida

TIPPETTS — ABBETT
McCARTHY — STRATTON
Engineers
Traffic, Parking and Transportation

Surveys, Economic Studies and Financial Reports

Highways, Subways, Bridges, Tunnels—Airports, Ports, Harbors, Power Developments, Water Supply, Sewerage

Planning, Reports, Design, Supervision of Construction

375 Park Avenue — New York 22, N.Y.
110 Market St. — San Francisco, Cal.

Highways — Transit
Traffic — Parking

WILBUR SMITH & ASSOCIATES

495 Orange Street
New Haven, Connecticut

Columbia, S.C. • San Francisco, Calif. • Richmond, Va.

HIGHWAY
TRAFFIC ENGINEERS, INC.

Traffic - Parking - Transportation
Economic Studies - Financial Reports
Traffic Control - Design of Lighting Systems and Communications

361 Boylston Street
Brookline 46, Massachusetts
LOngwood 6-0275

ALFRED KAEHRLE ASSOCIATES
CONSULTING ENGINEERS

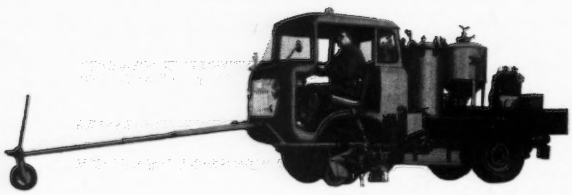
Highway Planning — Highway Design
Traffic Engineering Surveys
Parking Studies — Shopping Centers

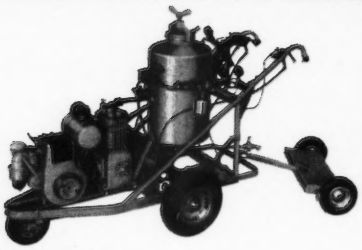
10 North Main Street
West Hartford 7 — Connecticut

WALD

REFLECTO-LINERS

MARK YOUR CITY'S STREETS MORE EFFICIENTLY—AT LESS COST!





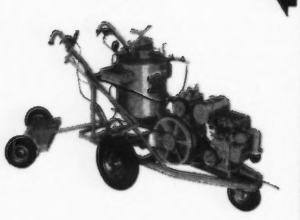
FOR METROPOLITAN CENTERS

THE TOWN & COUNTY: Revolutionary all-purpose Push Button Striper with exclusive built-in advantages. One-man operation. Automatic, electric controls for patterning lines and regulating intermittent advance and retard. Compact . . . maneuverable . . . soon pays its cost in time and labor savings.

MODEL 16: Designed for one-man striping in the thick of traffic, equipped with the newest mechanisms for instantaneous positive drive. Ideal for both *single* and *double* line work, built for long life and economical operation. Self-propelled.

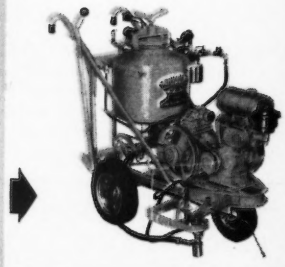
All Wald Reflectoliners Handle Ordinary Non-Reflective Paints as well as Reflective Marking Materials with Equal Ease

FOR LARGE AND MEDIUM CITIES



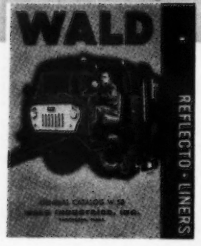
MODEL 12: The original Reflectoliner, light, fast, easy to handle. For single lines with clear-cut edges, 2 to 6 inch widths, this striper beats anything on the market. Wald's double-acting elbow traction gives it smooth, positive self-propelled driving power.

MODEL 8T: This lightweight, single-line self-propelled spray machine is unmatched in its field. It has strength and versatility, does a terrific job on streets, cross-walks, parking areas, aisles or any location requiring fast backing and turning.



Wald Industries, Inc.
Huntingdon, Penna.

Please send immediately your illustrated General Catalog W-58.



NAME_____

CITY_____

STATE_____ POSITION_____

For Small Cities, Towns & Industry

MODEL 8T, described above, outperforms by a wide margin every other small machine available, making it ideal for small cities and towns that need a self-propelled unit.

REFLECTO-LINER JR.: A rugged, hand-propelled striper that gives top performance in industrial uses, in-town striping, parking lots, etc. A gem of Wald engineering that handles as easily as a vacuum cleaner. Designed for the small municipality at a budget price.